

- 7:00 p.m. Call to Order.
- Invocation.
- Pledge of Allegiance.
- Roll Call.
- Proclamations:
1. 2023 Christmas Light Display Winners
- A. Consent Agenda:
1. Approve the City Council Meeting Minutes of the:
    - a. Regular Meeting of December 19, 2023.
  2. Approve the Accounts Payable Register of January 9, 2024, as presented.
  3. Approve the Resolution of Adoption of the 2023 Kalamazoo County Hazard Mitigation Plan
  4. Receive rezoning application No. 23/24-2 to rezone 6008 and 6018 Chelsea Lane from R-1A One-Family Residential to B-3 General Business District and P-1 Vehicular Parking District to facilitate future commercial development, and set a public hearing for February 6, 2024.
  5. Direct the City Administration to sell the property addressed as 9303 Portage Road and authorize the City Manager to execute all documents related to this action.
  6. Minutes of Boards & Commissions.
    - a. Human Services Board of October 5, 2023
  7. Materials Transmitted of December 19, 2023.
  8. Calendar of Meetings:
    - Historic District Commission: RESCHEDULED to Wednesday, January 10, at 8:30 a.m. at Portage City Hall.
    - Park Board: Wednesday, January 10, 2024, at 6:30 p.m. at the Parks & Recreation Building.
    - Environmental Board: Wednesday, January 10, at 7:00 p.m. at Portage City Hall.
    - Senior Citizens Advisory Board: Wednesday, January 17, at 2:30 p.m. at the Portage Zhang Senior Center.
    - Planning Commission: Thursday, January 18, at 7:00 p.m. at Portage City Hall.
- B. Petitions and Statements of Citizens:
- C. Communications:
1. Receive the annual report from the Environmental Board.
- D. Public Hearings:
1. Subsequent to the public hearing, consider adopting Resolution No. 2 to create six regional Industrial Development Districts in the City of Portage.
- E. Regular Business Agenda:
- F. Unfinished Business:
1. Adopt the amendment to Section 14, Article 4 (Solicitors and Canvassers) of the Portage Code of Ordinances, and the Fee Resolution.
- G. Council Committee Reports:

H. New Business:

I. Statements of Citizens:

J. Statements of City Council and City Manager.

Adjournment.



## CITY COUNCIL MEETING MINUTES FROM DECEMBER 19, 2023

Mayor Patricia Randall called the Regular Meeting to order at 07:00 PM in the Council Chambers at Portage City Hall.

**ROLL CALL:** Councilmembers Chris Burns, Victor Ledbetter, Nicole Miller, Terry Urban, Jihan Young, Mayor Pro Tem Jim Pearson, and Mayor Patricia Randall were present.

**ABSENT:** None.

**ALSO PRESENT:** City Manager Pat McGinnis, Chief Operating Officer Adam Herringa, Chief Development Officer Peter Dame, City Attorney Catherine Kaufman, and City Clerk Erica Eklov.

At the request of Mayor Randall, the audience observed a moment of silence to reflect on the value of humanity, good overcoming evil, and the prevailing need for peace. Following the moment of silence, the City Council recited the Pledge of Allegiance alongside Scout Troop #287. At the invitation of the Mayor, Scout leader Dan Bunker spoke about the Troop, the Eagle Scout honor, and introduced the four Eagle Scouts present. Mayor Randall acknowledged the bikeway that had been improved by the Scouts. Mayor Pro Tem Pearson thanked the Troop on behalf of those on the City Council on the Portage Rotary Club, which sponsored the Troop.

### **PROCLAMATIONS:**

**Peace Proclamation:** Mayor Randall read the proclamation into the record and noted it would be on display in the City Hall lobby through the duration of the new year.

**CONSENT AGENDA:** Mayor Randall shared where the public can access the meeting agenda and asked if any Councilmember or anyone in the audience would like an item removed from the Consent Agenda. Councilmember Urban removed Item A.3 (Solicitors and Canvassers ordinance amendment). Motion by Pearson, seconded by Urban, to approve the Consent Agenda as amended. Upon a roll call vote, motion carried 7 to 0.

**Approval of Minutes:** Motion by Pearson, seconded by Urban, to approve the City Council Meeting Minutes of the Regular Meeting of December 5, 2023. Upon a roll call vote, motion carried 7 to 0.

**Accounts Payable Register:** Motion by Pearson, seconded by Urban, to approve the Accounts Payable Register of December 19, 2023, as presented. Upon a roll call vote, motion carried 7 to 0.

**2024 Fee Schedules:** Motion by Pearson, seconded by Urban, to adopt the: 2024 Cemetery Fee Schedule; 2024 Proposed Freedom of Information Act fees; 2024 Proposed Community Development and Building Permit fees; 2024 Proposed Recreation and Park Facility fees; 2024 Proposed Senior Center Facility fees, and 2024 Proposed Special Assessment Rates. Upon a roll call vote, motion carried 7 to 0.

**Lakeview Park Renovation Phase II:** Motion by Pearson, seconded by Urban, to approve the continuation of the professional engineering services contract with O'Boyle, Cowell, Blalock & Associates Inc. (OCBA) of Kalamazoo MI, in the amount of \$95,900 for Lakeview Park Renovation Phase II and authorize the City Manager to execute all documents related to this action on behalf of the city. Upon a roll call vote, motion carried 7 to 0.

**City Council Retreat Part II:** Motion by Pearson, seconded by Urban, to set Tuesday, January 9, 2024 at 4:00 p.m. at City Hall as Part II of the annual City Council Goal Setting Retreat. Upon a roll call vote, motion carried 7 to 0.

**2024-2025 City Council Committees:** Motion by Pearson, seconded by Urban, to confirm the 2024-2025 City Council Committee assignments. Upon a roll call vote, motion carried 7 to 0.

**Minutes of Boards & Commissions:** Motion by Pearson, seconded by Urban, to receive the minutes of the Brownfield Redevelopment Authority of May 19, 2023, and Brownfield Redevelopment Authority of December 8, 2023. Upon a roll call vote, motion carried 7 to 0.

**Calendar of Meetings:** Motion by Pearson, seconded by Urban, to receive the Calendar of Meetings as presented. Upon a roll call vote, motion carried 7 to 0.

**PETITIONS AND STATEMENTS OF CITIZENS:**

1. Citizens Sy Overmyer (4302 East Centre Avenue), Daniel Smith (3022 Fleetwood Street), Bilinda Straight (5027 Angling Road), Omar Elghawy (3683 Bellflower Drive), Maribeth Henry (2621 Bach Avenue), Seema Tabbara (5532 Cypress Bay, Texas Township), and Hussein Gudah (8440 Valleywood Lane) spoke against the violence and confrontation between Israel and Gaza in the Middle East, and encouraged the City Council to adopt a ceasefire resolution.
2. Michael Cartier (1127 Lakeview Drive) thanked the City Council regarding the city's new proposal to place the future Farmer's Market in the City Centre area. He then spoke regarding the City Housing Task Force and the Lake Center District area efforts to date. Mr. Cartier noted the "reforms" achieved by the Task Force as part of the process. He encouraged continued transparency by the city and future uses of the task force model.
3. Megan Mendham (2151 Stanley Avenue) spoke regarding the planned development between the avenues of Stanley and Woodbine. She expressed concern about motorists speeding along Stanley Avenue and noted prior contact with the Kalamazoo Dispatch to report violators. Ms. Mendham then spoke regarding the Lake Center area development concerning affordable housing, and expressed concern for exceeding student numbers in the local school district.

**COMMUNICATIONS:**

**Eagle Scout Project Presentation:** At the invitation of the Mayor, Scout Leader Dan Bunker and Eagle Scout members of Troop #287 were introduced and recognized for their improvement projects for the city.

Motion by Burns, seconded by Urban, to receive the Eagle Scout presentation regarding the Angling Road boardwalk project. Upon a voice vote, motion carried 7 to 0.

**REGULAR BUSINESS AGENDA:**

**Amendment to Section 14, Article 4 (Solicitors and Canvassers):** Councilmember Urban explained that he removed the item from the Consent Agenda due to several concerns about certain ordinance provisions he had expressed in preparation for the meeting. He noted that the City Administration had made an effort to address his concerns through revisions, but two issues remained. Councilmember Urban suggested stricter hours of operation, as well as ensuring excepted groups are held to the operating hours. Councilmember Burns asked if Councilmember Urban intended to offer amendments, to which Councilmember Urban indicated willingness. Councilmember Burns then asked the City Manager to remind the Council of the reasons for the suggested ordinance changes. City Manager McGinnis responded that the annual city fees review prompted the update, as well as a desire to incorporate other best practices. Councilmember Burns expressed support for the stricter

operating hours and asked Councilmember Urban to repeat his second concern. Councilmember Urban confirmed his desire to have the organizations noted in the ordinance's exceptions be subject to the operating hours.

Councilmember Miller expressed concern about terminating the hours of operation at sunset, noting that winter daylight hours would greatly reduce opportunities for some businesses. Councilmember Young agreed with Councilmember Miller, as well as Councilmember Urban, and recommended permitting operations between 9 a.m. and 8 p.m. Councilmember Urban agreed that the original termination at sunset was not desirable.

Motion by Urban, seconded by Burns, to accept for first reading an amendment to Section 14, Article 4 (Solicitors and Canvassers) of the Portage Code of Ordinances, and set the second reading with adoption for January 9, 2024, to include adoption of the associated Fee Resolution, with the following changes to the ordinance as presented, changing Section 14-143(d) to read "Soliciting and canvassing are not permitted within the City of Portage between the hours of 8:00 p.m. and 8:00 a.m., and change Section 14-148, Exceptions, with the exception of Section 14-143(d) to apply Hours of Operation. Councilmember Urban asked the City Clerk to opine on his proposed amendments. City Clerk Eklov responded that staff had no stipulations regarding hours of operation, only that they be codified. Upon a roll call vote, motion carried 7 to 0.

**COUNCIL COMMITTEE REPORTS:** Councilmember Urban provided an update regarding the Lake Center Housing Task Force and the final efforts of the group.

Motion by Burns, seconded by Ledbetter, to receive the Council Committee Reports as presented. Upon a voice vote, motion carried 7 to 0.

#### **STATEMENTS OF CITIZENS:**

1. Carolyn Pesheck (6745 Shoreham Street) spoke regarding the Lakeview Park renovation project included in the Consent Agenda. She stated she did not see a landing for personal, non-motorized watercraft in the proposed plan. Ms. Pesheck encouraged including a lake landing for citizen use and safety reasons.

**STATEMENTS OF CITY COUNCIL AND CITY MANAGER:** Councilmember Young wished everyone a blessed, safe, and happy holiday season. She then expressed gratitude to Portage citizens, as well as her family. Councilmember Young encouraged compassion, giving, and recognition to the community.

Councilmember Burns extended wishes for happy holidays and a happy New Year to fellow Councilmembers and city staff.

Councilmember Urban stated his personal opinions regarding the strife in the Middle East and the position of representation of the City Council for the entire citizenry of Portage.

Councilmember Ledbetter expressed support for peace and humanity, wishing everyone a safe and happy holiday season for all celebrations. He closed with a reminder of compassion.

Councilmember Miller advised that Berries Pancake House would be offering complimentary meals for the upcoming holiday. She then recognized the Portage Public Safety Department for their social media public engagement effort with a holiday game to find the Grinch.

City Manager McGinnis offered thanks and gratitude on behalf of the city staff, as well as a happy, safe, and peaceful holiday season.

Mayor Pro Tem Pearson began by thanking the citizens who spoke at the beginning of the meeting for their comments about the Israeli/Gaza conflict. He then thanked the Mayor and city staff for creating the Peace Proclamation. Mayor Pro Tem Pearson closed by wishing everyone a happy and safe holiday season, and a blessed New Year.

Mayor Randall stated that the Peace Proclamation was her offer of compromise between the

City Council and citizens asking for a ceasefire resolution. She further stated that the Council is not uncaring and promotes peace. Next, she issued a reminder regarding the upcoming holiday closures for city offices and advised about the poinsettia tree giveaways. Mayor Randall closed by wishing everyone a safe and happy holiday season while thanking those emergency personnel working during the holidays.

**ADJOURNMENT:** Mayor Randall adjourned the meeting at 8:19 PM.

---

Erica L. Eklov, City Clerk

**TO:** Honorable Mayor and City Council

**FROM:** Pat McGinnis, City Manager

**SUBJECT:** Accounts Payable Register

**SUPPORTING PERSONNEL:** Lauren VanderVeen, Finance Director

**ACTION RECOMMENDED:** Approve the Accounts Payable Register of January 9, 2024, as presented.

The City Council reviews and approves the bi-weekly Accounts Payable Register which includes automated clearing house payments, paper checks, auto-pay payments and electronic payments. The attached Accounts Payable Register covers the period December 10, 2023, through December 30, 2023, and notes \$739,345.80 in automated clearing house payments, \$282,118.31 in paper checks, \$147,424.63 in auto-pay payments and \$1,331,122.12 in electronic payments for a grand total of \$2,500,010.86.

**FUNDING:** Not Applicable

**Attachments:** 1. Accounts Payable Register of January 9, 2024

ACCOUNTS PAYABLE REGISTER  
Check Dates From: 12/10/2023 to 12/30/2023

Page 1 of 8

Check Type: ACH Transaction

| Check Date | Check    | Vendor Name                         | Description                               | Amount     |
|------------|----------|-------------------------------------|-------------------------------------------|------------|
| 12/14/2023 | 20659(A) | OFF THE CUFF CATERING               | CATERING FOR THE HOLIDAY LUNCHEON-PZSC    | 1,677.50   |
| 12/15/2023 | 20660(A) | DURIAN, TAMMY                       | REIMB YAC MEETING REFRESHMENTS            | 29.90      |
| 12/15/2023 | 20661(A) | KUSHNER & COMPANY, INC.             | COBRA & FSA ADMINISTRATION                | 20.00      |
| 12/22/2023 | 20662(A) | A NEW LEAF                          | CITY HALL PLANT CARE                      | 108.50     |
| 12/22/2023 | 20663(A) | ADP, INC.                           | WORKFORCE NOW SERVICES                    | 6,769.09   |
| 12/22/2023 | 20664(A) | AIRGAS USA LLC                      | WELDING SUPPLIES                          | 102.30     |
| 12/22/2023 | 20665(A) | ALL CITY MANAGEMENT SERVICES, INC.  | CROSSING GUARD CONTRACT                   | 4,361.05   |
| 12/22/2023 | 20666(A) | ALL-TRONICS, INC.                   | QUARTERLY SERVICE MONITORING              | 156.00     |
| 12/22/2023 | 20667(A) | ALRO STEEL CORPORATION              | REPAIR & MAINTENANCE                      | 679.00     |
| 12/22/2023 | 20668(A) | AMAZON.COM SALES, INC.              | SHOP SUP-FF; STATION SUP & UNIFORMS-FD    | 1,800.57   |
| 12/22/2023 | 20669(A) | VOID                                |                                           | 0.00       |
| 12/22/2023 | 20670(A) | AMERICAN SAFETY & FIRST AID         | FIRST AID SUPPLIES                        | 863.31     |
| 12/22/2023 | 20671(A) | ANIMAL REMOVAL SERVICE, LLC         | ANIMAL REMOVAL SERVICES                   | 1,229.00   |
| 12/22/2023 | 20672(A) | AUNALYTICS INC                      | MONTHLY DISASTER RECOVERY SERVICES        | 2,910.00   |
| 12/22/2023 | 20673(A) | BAREITHER, CHAD                     | STRATEGIC PLANNING                        | 3,683.33   |
| 12/22/2023 | 20674(A) | BATTERIES PLUS                      | MISC BATTERIES                            | 18.59      |
| 12/22/2023 | 20675(A) | BENNETT, ZACHARY J                  | EVIDENCE TECHNICIAN                       | 34.00      |
| 12/22/2023 | 20676(A) | BEST WAY DISPOSAL, INC.             | CURBSIDE RECYCLING PROG                   | 68,050.46  |
| 12/22/2023 | 20677(A) | BLUE CARE NETWORK-GREAT LAKES       | BCNA HEALTH INSURANCE                     | 167,474.09 |
| 12/22/2023 | 20678(A) | C D W GOVERNMENT, INC.              | SCANNERS & PRINTERS                       | 2,697.02   |
| 12/22/2023 | 20679(A) | CARDINAL BUS, INC.                  | DANIEL O'DONNELL CHRISTMAS TRIP           | 1,245.00   |
| 12/22/2023 | 20680(A) | CLEAN EARTH ENVIRONMENTAL SERV      | JET WASH LINE & INSPECT                   | 741.00     |
| 12/22/2023 | 20681(A) | COLLIER, MICHAEL                    | REIMB-MLEAC RE-ACCREDITATION REFRESHMENTS | 165.18     |
| 12/22/2023 | 20682(A) | COLTER, KEVIN                       | CDBG - REPLACE FURNACE                    | 5,200.00   |
| 12/22/2023 | 20683(A) | CONTINENTAL LINEN SERVICES          | EVENT LINENS AND SUPPLIES                 | 183.67     |
| 12/22/2023 | 20684(A) | CORMIER, STEVEN PAUL                | SELF DEFENSE FITNESS INSTRUCTOR           | 700.00     |
| 12/22/2023 | 20685(A) | COX, ELISA ROSE                     | FITNESS INSTRUCTOR                        | 630.00     |
| 12/22/2023 | 20686(A) | DECAMP, DANIEL                      | REIMB FOR SUPPLIES                        | 41.31      |
| 12/22/2023 | 20687(A) | DEER CONTRACTING & LANDSCAPE        | HYDRANT DAMAGE RESTORATION                | 5,563.00   |
| 12/22/2023 | 20688(A) | DEPATIE FLUID POWER CO., INC.       | HYDRAULIC REPAIRS                         | 218.36     |
| 12/22/2023 | 20689(A) | ENGINEERED PROTECTION SYSTEMS, INC. | LOCK INSTALL-RAMONA, CAMERA INSTALL-PZSC  | 7,966.13   |
| 12/22/2023 | 20690(A) | FOREMOST SALES COMPANY LLC          | PARK FACILITY CLEANING                    | 2,355.00   |

ACCOUNTS PAYABLE REGISTER  
Check Dates From: 12/10/2023 to 12/30/2023

Page 2 of 8

| Check Date | Check    | Vendor Name                     | Description                              | Amount    |
|------------|----------|---------------------------------|------------------------------------------|-----------|
| 12/22/2023 | 20691(A) | GORDON WATER SYSTEMS            | WATER SERVICES                           | 563.06    |
| 12/22/2023 | 20692(A) | H&P TECHNOLOGIES                | LIFT STATION MAINTENANCE                 | 13,946.76 |
| 12/22/2023 | 20693(A) | HERTZ, SHANNON                  | REIMB-DUE/MEMBERSHIP HARVARD BUS REVIEW  | 135.00    |
| 12/22/2023 | 20694(A) | HOLCOMB, JOSHUA BARBER          | MUSIC INSTRUCTOR                         | 540.00    |
| 12/22/2023 | 20695(A) | INSIGHT PUBLIC SECTOR, INC.     | VEEAM RENEWAL, MICROSOFT CLOUD SVCS      | 16,782.62 |
| 12/22/2023 | 20696(A) | IRISH AYRES ENTERPRISES, LLC    | LEAF CLEAN UP                            | 1,365.00  |
| 12/22/2023 | 20697(A) | J & H OIL COMPANY               | BULK FUEL DELIVERY                       | 31,487.50 |
| 12/22/2023 | 20698(A) | JACK DOHENY SUPPLIES INC.       | VACTOR REPAIR SUPPLIES                   | 1,107.66  |
| 12/22/2023 | 20699(A) | JB PRINTING                     | DECEMBER PORTAGER                        | 3,428.32  |
| 12/22/2023 | 20700(A) | JONS TO GO PORTABLE RESTROOM    | PORTAGE RESTROOMS - HOL EVENT            | 430.00    |
| 12/22/2023 | 20701(A) | KAHN, WILMA                     | WRITING INSTRUCTOR                       | 348.00    |
| 12/22/2023 | 20702(A) | KALAMAZOO ELECTRIC MOTOR INC    | CONDENSER MOTORS FOR MILLENIUM ICE RINK  | 2,385.25  |
| 12/22/2023 | 20703(A) | KEHOE, EDWARD J                 | QIGONG FITNESS INSTRUCTOR                | 615.00    |
| 12/22/2023 | 20704(A) | KURZAVA, MATTHEW STEPHEN        | TAI CHI FITNESS INSTRUCTOR               | 780.00    |
| 12/22/2023 | 20705(A) | LAWSON PRODUCTS, INC            | REPAIR & MAINTENANCE SUP                 | 217.13    |
| 12/22/2023 | 20706(A) | LEATHERMAN, ROBERT              | REIMB-INTL SOCIETY OF FIRE SVC INSTR REG | 185.00    |
| 12/22/2023 | 20707(A) | LRE                             | AUSTIN LAKE EASTSHORE SURVEY             | 13,500.00 |
| 12/22/2023 | 20708(A) | MACQUEEN EQUIPMENT LLC          | MICHIGAN EXTRICATION TRAINING            | 1,456.92  |
| 12/22/2023 | 20709(A) | MATTISON, MEGAN                 | COOKING CLASS INSTRUCTOR                 | 360.00    |
| 12/22/2023 | 20710(A) | MATTSON, NICHOLAS               | PER DIEM-SUPV PATROL CRITICAL INCIDENTS  | 147.50    |
| 12/22/2023 | 20711(A) | MCNALLY ELEVATOR CO.            | ELEVATOR MAINTENANCE                     | 1,884.56  |
| 12/22/2023 | 20712(A) | METRONET HOLDINGS LLC           | MONTHLY INTERNET FIBER SERVICES          | 4,405.75  |
| 12/22/2023 | 20713(A) | MIDDLETON, KIMBERLY             | REIMB-HOLIDAY LUNCHEON DESSERT-PZSC      | 219.60    |
| 12/22/2023 | 20714(A) | MIDWEST ENERGY & COMMUNICATIONS | STREETLIGHT ENERGY COSTS                 | 330.32    |
| 12/22/2023 | 20715(A) | MORRISON INDUSTRIAL EQUIPMENT   | FORKLIFT RENTAL/REPAIR                   | 4,611.67  |
| 12/22/2023 | 20716(A) | MOTOR PARTS AND EQUIPMENT CORP  | REPAIR & MAINTENANCE SUP                 | 1,366.40  |
| 12/22/2023 | 20717(A) | NOTT, SARAH                     | ART INSTRUCTOR - WATERCOLORS             | 125.00    |
| 12/22/2023 | 20718(A) | NYE UNIFORMS                    | MISC UNIFORMS                            | 392.94    |
| 12/22/2023 | 20719(A) | O'BOYLE-COLWELL-BLALOCK & AS.   | LAKEVIEW PARK PHASE 1 A&E SERVICES       | 16,916.25 |
| 12/22/2023 | 20720(A) | OMEGA RAIL MANAGEMENT, INC.     | GRAND ELK RR RENTAL AGREEMENT            | 1,171.38  |
| 12/22/2023 | 20721(A) | ONSTAFF USA INC                 | TEMPORARY EMPLOYEE SVCS                  | 17,463.85 |
| 12/22/2023 | 20722(A) | PARIS CLEANERS                  | LAUNDRY SVCS                             | 936.07    |
| 12/22/2023 | 20723(A) | PECKELS, CHRISTINE              | YOGA FITNESS INSTRUCTOR                  | 240.00    |

ACCOUNTS PAYABLE REGISTER  
Check Dates From: 12/10/2023 to 12/30/2023

Page 3 of 8

| Check Date | Check    | Vendor Name                        | Description                              | Amount            |
|------------|----------|------------------------------------|------------------------------------------|-------------------|
| 12/22/2023 | 20724(A) | PETERS CONSTRUCTION CO.            | STORM STRUCTURE RECONST, REPAIR INLETS   | 7,998.74          |
| 12/22/2023 | 20725(A) | PLASKO, PATRICIA MARIE             | FITNESS INSTRUCTOR                       | 585.00            |
| 12/22/2023 | 20726(A) | PRECISION PRINTER SERVICES INC     | PRINTER SUPPORT SERVICES                 | 772.92            |
| 12/22/2023 | 20727(A) | PRINTING SERVICES INC              | PRINTING SERVICES                        | 1,707.75          |
| 12/22/2023 | 20728(A) | R W LAPINE INC.                    | HVAC PREVENTATIVE MAINT                  | 1,271.84          |
| 12/22/2023 | 20729(A) | REPUBLIC SERVICES OF WEST MICHIGAN | WASTE SERVICES                           | 1,357.98          |
| 12/22/2023 | 20730(A) | ROAD EQUIPMENT PARTS CENTER        | PARTS & MAINTENANCE SUP                  | 82.72             |
| 12/22/2023 | 20731(A) | ROBERT LAMSON, LLC                 | PRE-COE EVAL                             | 2,575.00          |
| 12/22/2023 | 20732(A) | ROE-COMM, INC.                     | MISC RADIO SERVICES                      | 175.00            |
| 12/22/2023 | 20733(A) | ROSE, SANDRA K.                    | CARDIO DRUMMING FITNESS INSTRUCTOR       | 300.00            |
| 12/22/2023 | 20734(A) | S B F ENTERPRISES, INC.            | PRINT, PROCESS, MAIL WATER & SEWER BILLS | 4,645.32          |
| 12/22/2023 | 20735(A) | SEVERANCE ELECTRIC COMPANY, INC    | TRAFFIC SIGNAL MAINT                     | 5,479.94          |
| 12/22/2023 | 20736(A) | SHINY BRITE WASHING SYSTEMS LLC    | VEHICLE CAR WASHES                       | 42.00             |
| 12/22/2023 | 20737(A) | SHULTS EQUIPMENT, INC.             | WING BLADE KIT                           | 5,445.80          |
| 12/22/2023 | 20738(A) | SIMPLIFILE LLC                     | DOCUMENT RECORDING                       | 166.25            |
| 12/22/2023 | 20739(A) | SMITH DAWSON & ANDREWS, INC.       | FEDERAL ADVOCACY SERVICES                | 5,000.00          |
| 12/22/2023 | 20740(A) | STOUT, MELISSA JOY                 | YOGA INSTRUCTOR                          | 420.00            |
| 12/22/2023 | 20741(A) | TARGETSOLUTIONS LEARNING LLC       | FIRE SOFTWARE                            | 1,992.00          |
| 12/22/2023 | 20742(A) | TELUS COMMUNICATIONS (U.S.) INC    | SKYHAWK GPS ACCESS/SERVICE FEES          | 755.20            |
| 12/22/2023 | 20743(A) | TMK WORLDWIDE, LLC                 | METER SERVICE                            | 817.32            |
| 12/22/2023 | 20744(A) | TRUCK & TRAILER SPECIALTIES        | VEHICLE PARTS & MAINTENANCE              | 581.40            |
| 12/22/2023 | 20745(A) | TYLER TECHNOLOGIES, INC.           | ANNUAL SOFTWARE MAINTENANCE              | 12,593.16         |
| 12/22/2023 | 20746(A) | UNIFIRST CORPORATION               | HALLWAY CARPET RENTAL                    | 163.09            |
| 12/22/2023 | 20747(A) | VEOLIA WATER CONTRACT OPERATIONS   | UTILITY SYSTEM OPERATION                 | 204,969.84        |
| 12/22/2023 | 20748(A) | VIRIDIS DESIGN GROUP               | AUSTIN LAKE EASTSHORE PRELIM A&E         | 2,000.00          |
| 12/22/2023 | 20749(A) | WAYNE COUNTY APPRAISAL LLC         | ASSESSING SERVICES                       | 39,349.25         |
| 12/22/2023 | 20750(A) | WEST MICHIGAN STAMP & SEAL, INC    | FIRE OFFICE SUPPLIES                     | 34.00             |
| 12/22/2023 | 20751(A) | WEST SHORE SERVICES, INC           | ANNUAL PREV MAINT OUTDOOR WARNING SIRENS | 6,320.00          |
| 12/22/2023 | 20752(A) | WOLVERINE LAWN SERVICE, INC.       | SNOWPLOWING/CROSSWALK SVCS               | 3,679.00          |
| 12/22/2023 | 20753(A) | XEROX CORPORATION                  | XEROX FOR RECORDS                        | 178.41            |
| 12/22/2023 | 20754(A) | YOUNGS, KENNETH M                  | K-9 KENNELING                            | 370.00            |
|            |          |                                    | <b>Total ACH</b>                         | <b>739,345.80</b> |



ACCOUNTS PAYABLE REGISTER  
Check Dates From: 12/10/2023 to 12/30/2023

Page 4 of 8

| Check Date        | Check  | Vendor Name                         | Description                              | Amount    |
|-------------------|--------|-------------------------------------|------------------------------------------|-----------|
| Check Type: Paper |        |                                     |                                          |           |
| 12/13/2023        | 326062 | SLATER, JAKE A                      | HOLIDAY CONCERT PERFORMANCE-PZSC         | 850.00    |
| 12/13/2023        | 326063 | SUN TITLE AGENCY OF MICHIGAN, LLC   | EARNST MONEY FOR 8847 PORTAGE ROAD       | 3,500.00  |
| 12/15/2023        | 326064 | DOGTEAMPRO                          | K-9 TEAM TRACKER SERVICE YEARLY SUB      | 600.00    |
| 12/15/2023        | 326065 | MICH ECONOMIC DEVELOPERS ASSOC      | MEMBERSHIP FEE                           | 325.00    |
| 12/15/2023        | 326066 | PETTY CASH-KIM STEWART              | REPLENISHMENT CHECK                      | 251.38    |
| 12/15/2023        | 326067 | SMITLEY, LELIA                      | REISSUE UNCASHED PAYROLL CHECK           | 238.82    |
| 12/22/2023        | 326068 | ADRIAN J KOOPSEN BUILDER, INC.      | SAFETY GLASS & INSTALLATION              | 10,300.00 |
| 12/22/2023        | 326069 | ALLEGRA PRINT & IMAGING             | PRINTING SERVICES                        | 4,290.00  |
| 12/22/2023        | 326070 | ALTA EQUIPMENT CO.                  | DURAPATCHER PARTS SHIPPING               | 420.00    |
| 12/22/2023        | 326071 | AMERICAN ASSOC OF CODE ENFORCEMENT  | AACE MEMBERSHIP                          | 75.00     |
| 12/22/2023        | 326072 | AMERICAN ASSOC OF CODE ENFORCEMENT  | AACE MEMBERSHIP                          | 75.00     |
| 12/22/2023        | 326073 | ASCENSION BORGESS HOSPITAL          | POST-COE EVAL                            | 2,173.00  |
| 12/22/2023        | 326074 | ASSOC OF STATE FLOODPLAIN MANANGERS | ASSOC OF STATE FLOODPLAIN MGR MEMBERSHIP | 180.00    |
| 12/22/2023        | 326075 | AT&T                                | ELECTRONIC COMMUNICATIONS                | 79.46     |
| 12/22/2023        | 326076 | BLAIN SUPPLY, INC.                  | WATER TANK MOTOR REPL, UNIFORM           | 644.94    |
| 12/22/2023        | 326077 | BROADCAST MUSIC, INC.               | 2024 MUSIC LICENSE                       | 421.00    |
| 12/22/2023        | 326078 | BRONSON HEALTHCARE GROUP            | LEGAL BLOOD DRAWS                        | 400.00    |
| 12/22/2023        | 326079 | CALIBRE PRESS                       | ADVANCED PATROL TACTICS REG              | 796.00    |
| 12/22/2023        | 326080 | CCIM INSTITUTE                      | MEMBERSHIP                               | 695.00    |
| 12/22/2023        | 326081 | CERTIFIED LABORATORIES              | EQUIPMENT MAINTENANCE                    | 1,049.22  |
| 12/22/2023        | 326082 | CINTAS CORPORATION NO. 2            | UNIFORM CHARGES                          | 81.25     |
| 12/22/2023        | 326083 | COMPLETE TEAM OUTFITTER, INC.       | VEST REPLACEMENT                         | 34.00     |
| 12/22/2023        | 326084 | DAY, LAUREL                         | CHARCUTERIE #101 CLASS                   | 225.00    |
| 12/22/2023        | 326085 | DIGITAL IMPACT DESIGN, INC.         | MEMORIAL PLAQUES                         | 23.66     |
| 12/22/2023        | 326086 | DIVE RESCUE INTERNATIONAL INC       | DIVE RESCUE INT ICE RESCUE TRAINER       | 525.00    |
| 12/22/2023        | 326087 | DRIVER, HELEN                       | REFUND FOR RENTAL ON 12.9.23 SECURITY DE | 250.00    |
| 12/22/2023        | 326088 | ECO-COMPTEUR INC.                   | ECO COUNTER DATA UPLOAD SUBSCRIPTION     | 595.00    |
| 12/22/2023        | 326089 | ED DRESLINSKI CONSULTING INC        | FIELD TR OFFICER SEMINAR REG             | 845.00    |
| 12/22/2023        | 326090 | EMERGENCY VEHICLE PRODUCTS          | CHANGEOVER POL VEHICLE                   | 27,174.89 |
| 12/22/2023        | 326091 | EVANS, JESSICA                      | PARKINSON EXERCISE GROUP CLASS INSTR     | 875.00    |
| 12/22/2023        | 326092 | FERGUSON US HOLDINGS, INC           | HYDRANT METER PARTS                      | 414.00    |
| 12/22/2023        | 326093 | FIRST REFORMED CHURCH               | SEPT-NOV PARKING FEE                     | 700.00    |

ACCOUNTS PAYABLE REGISTER  
Check Dates From: 12/10/2023 to 12/30/2023

Page 5 of 8

| Check Date | Check  | Vendor Name                         | Description                                  | Amount    |
|------------|--------|-------------------------------------|----------------------------------------------|-----------|
| 12/22/2023 | 326094 | FISH WINDOW CLEANING                | FALL WINDOW CLEANING                         | 2,200.00  |
| 12/22/2023 | 326095 | FREIGHTLINER OF GRAND RAPIDS, INC.  | REPAIR & MAINTENANCE SUP                     | 53.74     |
| 12/22/2023 | 326096 | GASAWAY, PATRICIA                   | TRIP REFUND - COME FROM AWAY                 | 90.00     |
| 12/22/2023 | 326097 | GORDON FOOD SERVICE                 | EVENT AND OPERATING SUPPLIES, COFFEE BAR     | 330.07    |
| 12/22/2023 | 326098 | HALLAHAN & ASSOCIATES, P.C.         | ASSESSING LEGAL SERVICES                     | 218.30    |
| 12/22/2023 | 326099 | HARRIS, MONICA A                    | ART CLASS INSTRUCTOR                         | 150.00    |
| 12/22/2023 | 326100 | HOME DEPOT                          | STREETS MAINT SUPPLIES                       | 955.30    |
| 12/22/2023 | 326101 | VOID                                |                                              | 0.00      |
| 12/22/2023 | 326102 | VOID                                |                                              | 0.00      |
| 12/22/2023 | 326103 | HOWE PATIO & WINDOWS, INC.          | KAL CO. - RPL WINDOWS, INSULATE DOORS        | 13,297.00 |
| 12/22/2023 | 326104 | IN-HOUSE SOLUTIONS, LLC             | FIELD TR OFFICER & MENTORSHIP-REGISTRATIONS  | 1,800.00  |
| 12/22/2023 | 326105 | IRISH AMERICAN CLUB OF KALMAZOO     | REFUND RENTAL SECURITY DEP                   | 250.00    |
| 12/22/2023 | 326106 | J & B MEDICAL SUPPLY INC            | FIRE TRAINING SUPPLIES                       | 679.00    |
| 12/22/2023 | 326107 | J J KELLER & ASSOCIATES, INC.       | FMLA MANAGER SUBSCRIPTION                    | 1,892.00  |
| 12/22/2023 | 326108 | JOHN BALL ZOO                       | MEET AND GREET ANIMAL STATION                | 226.00    |
| 12/22/2023 | 326109 | JOHNSON, HUGH                       | REFUND FOR GULF COAST TRIP                   | 200.00    |
| 12/22/2023 | 326110 | JOSEPH, POULSON                     | REFUND FOR SECURITY DEPOSIT                  | 150.00    |
| 12/22/2023 | 326111 | JRA FOOD SERVICE CONSULTANTS, LLC   | KITCHEN CONSULTANT SERVICES                  | 665.00    |
| 12/22/2023 | 326112 | KALAMAZOO COUNTY HEALTH & COMMUNITY | HOUSEHOLD HAZARDOUS WASTE PROGRAM            | 2,437.54  |
| 12/22/2023 | 326113 | KALAMAZOO COUNTY TREASURER          | COLONIAL ACRES NOVEMBER 2023 MOBILE HOME     | 452.50    |
| 12/22/2023 | 326114 | KALAMAZOO LANDSCAPE SUPPLIES        | LAWN RESTORE - STUMP GRINDING                | 280.00    |
| 12/22/2023 | 326115 | KALAMAZOO PICKLEBALL                | PICKLEBALL CLINICS                           | 42.50     |
| 12/22/2023 | 326116 | KONICA MINOLTA BUSINESS SOLUTIONS   | PRINTER MAINTENANCE FEES                     | 383.67    |
| 12/22/2023 | 326117 | KZOO TIRE COMPANY                   | POLICE VEHICLE REPAIR/MAINTENANCE            | 19.50     |
| 12/22/2023 | 326118 | LAMPLIGHTER ELECTRICAL LLC          | EMER KAL CO. - ELECTRICAL SVC & PANEL UPDATE | 3,627.00  |
| 12/22/2023 | 326119 | LANE, LAUREN                        | HAYLOFT THEATRE DEPOSIT REFUND               | 150.00    |
| 12/22/2023 | 326120 | LEE, BARBARA                        | REFUND FOR GULF COAST TRIP #240228           | 90.00     |
| 12/22/2023 | 326121 | LEXISNEXIS RISK DATA MANAGEMENT INC | MONTHLY ACCURINT                             | 150.00    |
| 12/22/2023 | 326122 | LUXYCLAD LTD                        | SIDING MATERIAL & TRIM                       | 859.90    |
| 12/22/2023 | 326123 | MALSOM, ANDREA JEAN                 | PARKINSON CLASS INSTRUCTOR                   | 450.00    |
| 12/22/2023 | 326124 | MCDONALD'S TOWING & RESCUE, INC.    | TOWING SERVICES                              | 114.00    |
| 12/22/2023 | 326125 | MENARDS                             | REPAIR & MAINTENANCE SUP                     | 10.36     |
| 12/22/2023 | 326126 | METRONET INC.                       | REF DUPLICATE PMT-#20741                     | 523.73    |

ACCOUNTS PAYABLE REGISTER  
Check Dates From: 12/10/2023 to 12/30/2023

Page 6 of 8

| Check Date | Check  | Vendor Name                         | Description                           | Amount    |
|------------|--------|-------------------------------------|---------------------------------------|-----------|
| 12/22/2023 | 326127 | MI ASSOC. OF CHIEFS OF POLICE       | MACP MEMBERSHIPS                      | 200.00    |
| 12/22/2023 | 326128 | MICH MUNICIPAL POLICE & FIRE REPAIR | POLICE VEHICLE REPAIR & MAINTENANCE   | 1,206.88  |
| 12/22/2023 | 326129 | MICHIGAN ASSOCIATION OF MAYORS, INC | 2024 MEMBERSHIP DUES                  | 110.00    |
| 12/22/2023 | 326130 | MICHIGAN FIRE INSPECTOR'S SOCIETY   | FIRE PREVENTION DUES                  | 280.00    |
| 12/22/2023 | 326131 | MICHIGAN MUNICIPAL LEAGUE           | MME MEMBERSHIP RENEWAL                | 440.00    |
| 12/22/2023 | 326132 | MICHIGAN RECREATION & PARK ASSOC.   | PAYMENT FOR TRIP 24.05.14 GRAND HOTEL | 11,300.00 |
| 12/22/2023 | 326133 | MICRO-LAM                           | RENTAL SECURITY DEP REFUND            | 120.00    |
| 12/22/2023 | 326134 | MOSES FIRE EQUIPMENT, INC.          | FIRE TRAINING SUP, CLASS A FOAM       | 4,406.84  |
| 12/22/2023 | 326135 | NANCY OBIDZINSKI-LUM                | RENTAL SECURITY DEP REFUND            | 250.00    |
| 12/22/2023 | 326136 | NAYLOR LANDSCAPE MANAGEMENT INC.    | SNOW REMOVAL SVCS                     | 2,551.04  |
| 12/22/2023 | 326137 | O'BRIEN REAL ESTATE                 | RENTAL SECURITY DEP REFUND            | 150.00    |
| 12/22/2023 | 326138 | OFFICE DEPOT, INC.                  | OFFICE SUPPLIES                       | 1,039.28  |
| 12/22/2023 | 326139 | VOID                                |                                       | 0.00      |
| 12/22/2023 | 326140 | ORBIS ENVIRONMENTAL CONSULTING      | ARCHEOLOGICAL SURVEY                  | 5,068.80  |
| 12/22/2023 | 326141 | PAAM                                | PACC ELECTRONIC WARRANT MANUAL        | 110.00    |
| 12/22/2023 | 326142 | PACE SYSTEMS, INC.                  | ANNUAL FEES PACE SCHEDULE SOFTWARE    | 6,350.00  |
| 12/22/2023 | 326143 | PAW PAW VETERINARY CLINIC, P.C.     | K9 VETERINARY APPT                    | 206.68    |
| 12/22/2023 | 326144 | PETERMAN CONCRETE CO.               | GUTTER PAN REPAIR ON SURRY            | 169.81    |
| 12/22/2023 | 326145 | PETTY CASH-DANA FAIR                | REPLENISHMENT CHECK                   | 457.40    |
| 12/22/2023 | 326146 | PHILLIPS, KIMBERLY                  | REIMBURSE FOR EXPENSES                | 176.13    |
| 12/22/2023 | 326147 | PURITY CYLINDER GASES, INC          | WELDING SUPPLIES                      | 56.63     |
| 12/22/2023 | 326148 | QUADMED, INC.                       | FIRE EMS SUPPLIES                     | 336.95    |
| 12/22/2023 | 326149 | RATHCO SAFETY SUPPLY, INC.          | ROAD SIGNS & TRAFFIC CONES            | 804.00    |
| 12/22/2023 | 326150 | RENEWED EARTH, INC.                 | LEAF AND BRUSH DISPOSAL               | 8,166.66  |
| 12/22/2023 | 326151 | RENTALEX OF MICHIGAN, INC.          | HOLIDAY MARKET OUTDOOR TENT           | 1,314.49  |
| 12/22/2023 | 326152 | RESTORATIVE LAKE SCIENCES, LLC      | WEST LAKE WEED MANAGEMENT PROGRAM     | 1,875.00  |
| 12/22/2023 | 326153 | ROCKFORD ADVERTISING                | MICHIGAN TRAILS MAGAZINE RENEWAL      | 2,826.25  |
| 12/22/2023 | 326154 | ROWLEY BROTHERS, INC.               | HYDRAULIC OIL                         | 3,015.65  |
| 12/22/2023 | 326155 | SCHLEY NELSON ARCHITECTS, INC.      | ARCHITECT CONSULTING                  | 1,820.50  |
| 12/22/2023 | 326156 | SCHOOLCRAFT COLLEGE                 | PPCT INSTRUCTOR SCHOOL REGISTRATIONS  | 2,200.00  |
| 12/22/2023 | 326157 | SIGN SHOP OF WESTERN MICHIGAN       | STAFFING BOARD MAGNET                 | 30.00     |
| 12/22/2023 | 326158 | SMART SOURCE, LLC                   | PRESENTATION JACKETS                  | 3,000.31  |
| 12/22/2023 | 326159 | SMITH, DAVID                        | MUSIC FOR THE BAND                    | 55.00     |

ACCOUNTS PAYABLE REGISTER  
Check Dates From: 12/10/2023 to 12/30/2023

Page 7 of 8

| Check Date | Check  | Vendor Name                     | Description                               | Amount    |
|------------|--------|---------------------------------|-------------------------------------------|-----------|
| 12/22/2023 | 326160 | SPECTRUM PRINTERS, INC.         | VOTER ID CARDS                            | 67.50     |
| 12/22/2023 | 326161 | ST. REGIS CULVERT, INC.         | PLOW BLADES HARDENED                      | 7,675.00  |
| 12/22/2023 | 326162 | STALKER RADAR                   | RADAR UNIT REPAIRS                        | 257.50    |
| 12/22/2023 | 326163 | STATE INDUSTRIAL PRODUCTS CORP  | CLEANING/JANITORIAL SUPPLIES              | 991.20    |
| 12/22/2023 | 326164 | STATE SYSTEMS RADIO, INC        | MTHLY RADIO SERVICES FEES                 | 561.00    |
| 12/22/2023 | 326165 | STEENSMA LAWN & POWER EQUIPMENT | LEAF PICKUP SUPPLIES                      | 307.96    |
| 12/22/2023 | 326166 | STIMSON, JONI                   | REIMB FOR ROTO ROOTER REPAIRS             | 294.25    |
| 12/22/2023 | 326167 | STOUT, JOYCE                    | REFUND FOR CHRISTKINDL MARKET             | 20.00     |
| 12/22/2023 | 326168 | TITLE RESOURCE AGENCY           | REFUND OP FINAL UTILITY BILLING           | 52.15     |
| 12/22/2023 | 326169 | ULINE, INC.                     | MOBILE STORAGE CABINETS                   | 1,585.07  |
| 12/22/2023 | 326170 | UNITED PARCEL SERVICE           | UPS WEEKLY                                | 6.00      |
| 12/22/2023 | 326171 | US DIGITAL DESIGNS, INC.        | FIRE STATION ALERTING                     | 14,755.45 |
| 12/22/2023 | 326172 | US HYD LLC                      | TINK CYLINDER REPAIR                      | 2,857.65  |
| 12/22/2023 | 326173 | VERIZON WIRELESS                | CELL PHONE/WIRELESS CARD SVC              | 1,899.76  |
| 12/22/2023 | 326174 | WALKER, JEAN                    | PZSC VETERANS LUNCHEON                    | 300.89    |
| 12/22/2023 | 326175 | WASTE MANAGEMENT                | WTP IRON WASTE REMOVAL                    | 248.50    |
| 12/22/2023 | 326176 | WEBUILDFUN, INC                 | RAMONA PARK SWING REPLACEMENT             | 3,985.06  |
| 12/22/2023 | 326177 | WINTER EQUIPMENT COMPANY, INC.  | UNDERBODY BLADES & CURB BITS              | 3,921.75  |
| 12/22/2023 | 326178 | YEO & YEO                       | 2022-2023 AUDIT AND ACFR PREPARATION      | 5,800.00  |
| 12/29/2023 | 326179 | ADVANTAX, INC.                  | 2023 SUMMER TAX REFUND DUE DBOR           | 1,624.09  |
| 12/29/2023 | 326180 | AT&T                            | ELECTRONIC COMMUNICATIONS                 | 207.33    |
| 12/29/2023 | 326181 | BAKER, MARK D.                  | 2023 SUMMER TAX REFUND DUE PRE CHANGE     | 1,601.35  |
| 12/29/2023 | 326182 | BOYD, BRUCE                     | 2023 SUMMER TAX REFUND DUE DBOR           | 1,806.20  |
| 12/29/2023 | 326183 | CITY OF PORTAGE                 | 2023 SUMMER TAX REFUND DUE DBOR           | 16,657.95 |
| 12/29/2023 | 326184 | COMPASS GROUP USA, INC.         | 2023 SUMMER TAX REFUND DUE DBOR           | 1,099.40  |
| 12/29/2023 | 326185 | CORELOGIC CENTRALIZED REFUNDS   | 2023 SUMMER TAX REFUND DUE VETERAN EXEMPT | 19,390.70 |
| 12/29/2023 | 326186 | CORELOGIC CENTRALIZED REFUNDS   | 2023 SUMMER TAX REFUND DUE DBOR PARCELS   | 7,050.59  |
| 12/29/2023 | 326187 | CURTIS, ROBERT OR SHARON TRUST  | 2023 SUMMER TAX REFUND DUE VETERAN EXEMPT | 1,388.83  |
| 12/29/2023 | 326188 | GREEN, TIMOTHY OR AVA           | 2023 SUMMER TAX REFUND DUE PRE CHANGE     | 2,021.56  |
| 12/29/2023 | 326189 | HOWARD, KIMBERLY                | 2023 SUMMER TAX REFUND DUE DBOR           | 5,509.64  |
| 12/29/2023 | 326190 | LACKEY, ROBERTA OR              | 2023 SUMMER TAX REFUND DUE DBOR           | 2,533.82  |
| 12/29/2023 | 326191 | LERETA LLC                      | 2023 SUMMER TAX REFUND DUE VETERAN EXEMPT | 2,158.61  |
| 12/29/2023 | 326192 | LERETA LLC                      | 2023 SUMMER TAX REFUND DUE DBOR           | 1,806.72  |

ACCOUNTS PAYABLE REGISTER  
Check Dates From: 12/10/2023 to 12/30/2023

Page 8 of 8

| Check Date                | Check  | Vendor Name                      | Description                               | Amount            |
|---------------------------|--------|----------------------------------|-------------------------------------------|-------------------|
| 12/29/2023                | 326193 | MYERS, KAYE & GEORGE TRUSTS      | 2023 SUMMER TAX REFUND DUE DBOR           | 5,471.96          |
| 12/29/2023                | 326194 | NELSON, RONALD                   | 2023 SUMMER TAX REFUND DUE VETERAN EXEMPT | 3,396.15          |
| 12/29/2023                | 326195 | RANNEY, DONNA M TRUST            | 2023 SUMMER TAX REFUND DUE DBOR           | 5,211.46          |
| 12/29/2023                | 326196 | RUTHERFORD JR, DONALD E. TRUST   | 2023 SUMMER TAX REFUND DUE DBOR           | 1,501.22          |
| 12/29/2023                | 326197 | T C SCOTT CONSTRUCTION LLC       | 2023 SUMMER TAX REFUND DUE DBOR           | 1,634.01          |
| 12/29/2023                | 326198 | TENNIMON, BRANDON                | 2023 SUMMER TAX REFUND DUE VETERAN EXEMPT | 597.17            |
| 12/29/2023                | 326199 | VAUGHN, DAVID & TANYA            | 2023 SUMMER TAX REFUND DUE VETERAN EXEMPT | 380.57            |
| 12/29/2023                | 326200 | WOODBIDGE LTD PARTNERSHIP        | 2023 SUMMER TAX REFUND DUE DBOR           | 334.26            |
| 12/28/2023                | 326201 | FIRST REFORMED CHURCH OF PORTAGE | LUMP SUM PMT FOR 2024 OVERFLOW PARKING    | 1,200.00          |
| <b>Total Paper Checks</b> |        |                                  |                                           | <b>282,118.31</b> |

Check Type: Auto-Pay Payments

|                         |                              |                                   |            |
|-------------------------|------------------------------|-----------------------------------|------------|
| 12/11/2023              | CONSUMERS AUTOPAY            | GAS-ELECTRIC                      | 3,655.70   |
| 12/12/2023              | CONSUMERS AUTOPAY            | GAS-ELECTRIC                      | 918.67     |
| 12/13/2023              | CONSUMERS AUTOPAY            | GAS-ELECTRIC                      | 7,263.10   |
| 12/14/2023              | CONSUMERS AUTOPAY            | GAS-ELECTRIC                      | 438.53     |
| 12/15/2023              | CONSUMERS AUTOPAY            | GAS-ELECTRIC                      | 4,710.31   |
| 12/15/2023              | MISSIONSQUARE                | EMPLOYEE RETIREMENT WITHHOLDINGS  | 42,926.24  |
| 12/18/2023              | MISSIONSQUARE                | EMPLOYER RETIREMENT CONTRIBUTIONS | 37,197.49  |
| 12/18/2023              | CONSUMERS AUTOPAY            | GAS-ELECTRIC                      | 286.02     |
| 12/28/2024              | BLUE CROSS/BLUE SHIELD OF MI | HEALTH INSURANCE                  | 8,651.39   |
| 12/29/2024              | MISSIONSQUARE                | EMPLOYEE RETIREMENT WITHHOLDINGS  | 41,154.08  |
| 12/29/2024              | CONSUMERS AUTOPAY            | GAS-ELECTRIC                      | 223.10     |
| Total Auto-Pay Payments |                              |                                   | 147,424.63 |

Check Type: Electronic Payments

|                                  |          |                                  |                     |
|----------------------------------|----------|----------------------------------|---------------------|
| 12/22/2023                       | MULTIPLE | WEEKLY TAX DISBURSEMENT 12/15/23 | 689,971.82          |
| 12/28/2024                       | SBF      | POSTAGE-WATER/SEWER BILLS        | 2,251.54            |
| 12/29/2024                       | MULTIPLE | WEEKLY TAX DISBURSEMENT 12/22/23 | 638,898.76          |
| <b>Total Electronic Payments</b> |          |                                  | <b>1,331,122.12</b> |

**Grand Total** **2,500,010.86**

**TO:** Honorable Mayor and City Council

**FROM:** Pat McGinnis, City Manager

**SUBJECT:** Adoption of the 2023 Kalamazoo County Hazard Mitigation Plan

**SUPPORTING PERSONNEL:** Nicholas Arnold, Director of Public Safety - Police / Fire Chief

**ACTION RECOMMENDED:** Approve the Resolution of Adoption of the 2023 Kalamazoo County Hazard Mitigation Plan

The City of Portage has adopted two emergency plans related to disasters and potential disasters in our community. Those two plans are the Support Emergency Operations Plan and the Kalamazoo County Hazard Mitigation Plan.

The Support Emergency Operations Plan (SEOP) is an all-hazards plan in support of the Kalamazoo County Emergency Operations Plan/Emergency Action Guidelines used in the event of a disaster (natural, technological, human-related, or terroristic in origin). The latest SEOP was completed in 2019, then approved by the City Council and signed by the City Manager and Director of Public Safety in 2020. The plan provides the City of Portage with the ability to request additional resources in the event of an emergency incident or event.

The Kalamazoo County Hazard Mitigation Plan (KCHMP) was originally developed in 2006 and formally adopted by the Portage City Council in August 2006. This plan is a precursor to any disaster where potential hazards are identified on a county basis, which then enables the City of Portage to be eligible for Federal Funding for Hazard Mitigation Projects. A revision of the KCHMP was completed in 2022 and formally adopted by the Kalamazoo County Government in 2023. Each new revision requires a formal resolution of adoption of the revised or updated plan by the City of Portage to ensure the ability to request and receive funding related to identified potential hazards in our community to offset costs related to these projects. Therefore, it is recommended that City Council approve the Resolution of Adoption of the 2023 Kalamazoo County Hazard Mitigation Plan.

**FUNDING:** N/A

**Attachments:**

1. Kalamazoo County Hazard Mitigation Plan 2022
2. KCHMP Adoption Resolution Aug 06
3. 2023 HazMit Plan Sample Adoption Resolution



# **Kalamazoo County Hazard Mitigation Plan**



**January 2022**

**Created by the Planning Team of the**

**Kalamazoo County**

**Office of Emergency Management**



**Sheriff Richard C. Fuller III – Coordinator**  
Kalamazoo County Sheriff Office

**Michael Corfman- Director**  
Kalamazoo County Office of Emergency Management

***Staff:***

**(Kalamazoo County Office of Emergency Management)**  
**Jeffrey Parsons- Emergency Management Specialist**  
**Andrew Alspach- Mitigation Planner**

***And with the participation of the members of  
the Kalamazoo County Disaster Preparedness Committee***



**TABLE OF CONTENTS**

**TABLE OF CONTENTS.....i**

**INTRODUCTION..... ii**

**Chapter 1: Community Profile ..... 1-1**

**Chapter 2: The Planning Process ..... 2-1**

**Chapter 3: Core Capabilities and Community Lifelines ..... 3-1**

**Chapter 4: Hazard Analysis ..... 4-1**

**Chapter 5: 2013 Action Plan Status- 2021 Update..... 5-1**

**Chapter 6: 2022 Mitigation Action Plan ..... 6-1**

**Annex A: City of Kalamazoo- Portage Creek Flood Control Project .....i**

**Annex B: City of Kalamazoo- Northside Stormwater Relief Project..... vii**

**Annex C: City of Kalamazoo – Water and Wastewater Generator Project....ix**

**Appendix A: Local Jurisdiction Primary Contacts.....a**

**Appendix B: Sample Meeting Minutes- Kalamazoo County Disaster  
Preparedness Committee..... b**

# INTRODUCTION

## *What is Hazard Mitigation?*

Hazard mitigation is any action taken before, during, or after a disaster to reduce or eliminate the impacts or long-term risks from hazards (natural, technological, or human-caused) upon life, property, economic activity, and/or the environment. It is an essential element of emergency management, along with preparedness, response and recovery. When successful, hazard mitigation will lessen the need for a community to respond to subsequent hazard events, for some incidents may remain as mere incidents and not become disasters. Similarly, disaster events should involve lesser levels of impact than they otherwise would have. Hazard mitigation strives to reduce the impact of hazards on people, property, the environment and economy, and continuity of services, through the coordination of available resources, programs, initiatives, and authorities.

Mitigation *planning* is a key process used to break the cycle of disaster damage, reconstruction, and repeated damage. The goal is to reduce overall risk to the population and structures from future hazard events, while also reducing reliance on Federal funding in future disasters. This plan was created to protect the health, safety and economic interests of the community by reducing the impacts of hazards through hazard mitigation planning, awareness, and implementation.

The Kalamazoo County Hazard Mitigation Plan (KCHMP) serves as the foundation for hazard mitigation activities within the community. Implementation of the plan's recommendations will reduce injuries, loss of life, destruction of property, or environmental degradation due to natural, technological, and human-caused hazards. The plan provides a path toward continuous, proactive reduction of vulnerability to the most frequent hazards that result in repetitive and often severe social, economic and physical damage. The ideal result would be the total integration of hazard mitigation activities, programs, capabilities, and actions into normal, day-to-day governmental functions and management practices.

This revised document updates the previous version of the Kalamazoo County Hazard Mitigation Plan, which was finalized and formally adopted in January of 2013, with the original KCHMP being authored in 2006. As part of this ongoing updating process, the plan has been re-structured to make it easier to view and use as a "public-facing" document. The digital version is in "pdf" or Portable Document Format and has been rendered searchable by word or phrase when viewed in a pdf viewing application or program, such as Adobe Reader. This should be helpful for stakeholders to more easily find and review the information that is most relevant for their jurisdictions and areas of interest.

In this document, a hazard analysis section describes the three major types of hazards recognized by FEMA and the National Response Framework (natural, technological, and adversarial or human-caused) that could potentially affect Kalamazoo County, and then further defines and analyzes the risk and vulnerability of specific hazards. The analysis of hazards is rooted in a community profile that includes a description of community organization and potential resources.

- Description of the hazard,
- Explanation of how it affects the County,
- Requirements/Rules affecting the County,
- Mitigation Goal(s) that have been identified, and
- Description of the Action Item proposed.

The plan provides an explanation for why these mitigation actions are proposed.

The Kalamazoo County Hazard Mitigation Plan was created to document the process by which the County and its individual units of local government can protect the health, safety, and economic interests of the Kalamazoo County residents and businesses by reducing the impacts of hazards through hazard mitigation planning, awareness, and implementation. The plan serves as the description of the ongoing hazard mitigation activities and actions within the Kalamazoo County. Implementation of the recommendations outlined herein will reduce loss of life, destruction of property, and economic losses due to natural and technological hazards. The plan provides a path toward continuous improvement, and the proactive reduction of vulnerability to hazards that result in repetitive and oftentimes severe social, economic and physical damage.

The ideal end state is full integration of hazard mitigation concepts into day-to-day governmental and business functions and management practices.

These practices are far from new to Kalamazoo County. Many of the elements contained in this plan have been in place or planned for months or even years. The writing of this plan was possible due to these elements of the community already working in a productive and cooperative leadership structure. Many of the individuals identified later in this document as being a “Lead Manager Assigned” to particular elements of the mitigation strategy are also listed in the Kalamazoo County Directory located on the county government website (<https://www.kalcounty.com/directory/leadtodirs.htm>) as already being the lead individual for critical community functions.

The **legal authority** forming the basis for the KCHMP derives from various Laws, Public Acts, and Policy Directives, (both Federal and State). PA 390, the *Michigan Emergency Management Act*, is the primary source of authority via the State of Michigan, empowering the Department of State Police (MSP) with a broad remit to carry out the emergency management activities of prevention, mitigation, preparedness, response and recovery within the state of Michigan. In turn, at the Federal level, several edicts can be cited, depending on the aspect in question. In particular, with regards to this plan, under the *Disaster Mitigation Act of 2000* and related regulations appearing in the Federal Register, Congress set aside grant money for the purpose of assisting communities in developing hazard mitigation plans for their communities. That resulted in the development of the initial hazard mitigation plan for Kalamazoo County, which was approved in 2006. The National Response Framework (NRF) and FEMA have been refining and evolving the structures and emphasis of disaster preparedness under a number of initiatives, informed by experience. These include the Building Resilient Infrastructure and Communities grant program (BRIC). BRIC replaces the existing Pre-Disaster Mitigation program and is a result of amendments made to the Stafford Act by the Disaster Recovery Reform Act of 2018 (DRRA). Also of importance to this process is the Community Lifelines initiative, which is explained in more detail below.

**The Planning Team:** In 2019, Mike Corfman, the Director of the Office of Emergency Management (OEM) within the Kalamazoo County Sheriff's Office, undertook the role of coordinating the development of this Hazard Mitigation Plan update, aligning it with these most recent and relevant structures, for the benefit of the entire community. A Mitigation Planner was engaged specifically to help guide and write the updated plan, using grant funding provided by the Michigan State Police Emergency Management and Homeland Security Division Hazard Mitigation Assistance Program. Additional core members of the Team were the Director of OEM (Mr. Corfman), as well as the OEM staff Emergency Management Specialist, Jeffrey Parsons. Many subject matter experts were consulted, mostly via the mechanism of the Kalamazoo County Disaster Committee.

It is the intention of all parties—FEMA, Michigan State Police, Kalamazoo EMD, and the communities within Kalamazoo County—that this plan be regularly updated. FEMA rules require that a plan update process take place within five years of the approval date of the previous plan.

The creators of this plan intend that it will in fact be maintained as an ongoing operation in the most logical forum for the County—the Kalamazoo County Disaster Committee (KCDC), where circles of responsibility and interest intersect and are exemplified by ongoing regularly-scheduled group and ad-hoc team activities. The KCDC has long met regularly, on a monthly basis.

Using FEMA guidelines as a reference, a collaborative planning effort took place, involving the Kalamazoo County Office of Emergency Management, the Kalamazoo County Disaster Committee, representatives from participating local jurisdictions within the County, and the state-level Emergency Management and Homeland Security Division of the Michigan State Police. Interested agencies and members of the general public were able to review draft materials, attend open meetings, and provide feedback about the plan or its process. The goals and objectives outlined later in the plan serve as a touchstone that ideally is part of an established cyclical process of plan review, evaluation, implementation, and update.

This plan employs a broad perspective in examining multi-hazard mitigation activities and opportunities in Kalamazoo County. Hazards that threaten to public health, safety, and welfare, as well as the social, economic, and physical fabric of the community, have received emphasis in this plan. The plan addresses such hazards as floods, tornadoes, windstorms, winter storms, structural fires, hazardous material incidents, and secondary technological hazards that result from natural hazard events. Hazards are analyzed from a historical perspective as well as from individual community perspectives, and

are evaluated in terms of their potential chance of occurrence and their likely impacts, when being considered and prioritized for possible mitigation actions.

The following Goals had been identified as a part of the previous versions of the plan:

**Goal 1:** Provide disaster planning and mitigation resources to appropriate elements of Kalamazoo County.

**Goal 2:** Expand and refine the detailed analysis of hazards affecting Kalamazoo County.

**Goal 3:** Strengthen the effectiveness of the KCDC's ongoing processes and roles.

**Goal 4:** Increase public awareness of hazard mitigation methods and resources.

**Goal 5:** Comply with FEMA requirements in order to obtain and use hazard mitigation grants.

**Goal 6:** Complete or make progress toward implementing the most viable of the hazard mitigation projects described in the Mitigation Actions section of the KCHMP.

In a general sense, these goals remain as stated remain valid, but changes in community demographics, policy and guidance, and recent events will drive specific components of the updated plan.

Special emphasis was given to hazards and projects affecting personal safety and personal and business security. This emphasis formed the basis for the ultimate selection of key projects that had been prioritized in 2013, such as:

**1) Warning Sirens** (since 2006, five new sirens were added to Charleston Township, one to Climax, and 2 to Richland). **2020: Major changes in siren systems and enhancements to public warning capabilities since 2013. See Chapter 3-“Core Capabilities and Community Lifelines”. See Appendix A for a list of sirens and their status as of 2021.**

**2) “Safe Rooms”.** **The Planning Team could not find any progress reports or details. ONGOING**

**3) Emergency Shelters. 2020: The Red Cross continues as Lead Agency on sheltering. They are in contact with various community partner agencies and VOADS (Volunteer Organizations Assisting in Disasters. More on our VOAD program in Chapter 1: Community Profile.**

**4) Backup Power Generation for critical facilities and infrastructure components (e.g. water systems, fire stations, gas stations). 2020: Events and technology developments have driven acceptance and public and private-sector stakeholders and residents are actively engaged on a wide scale. Generators and renewable energy sources are now seen as a vital part of preparedness and resiliency.**

**In this update,** more attention and focus has been given to addressing shortcomings in public awareness, information sharing, communications, and equity and inclusion. In reviewing past events, both locally and in wider scale, these issues are almost universally cited as areas in need of improvement. An emphasis on these areas is seen as very high in benefit-to-cost, as well as in serving to enhance community resiliency in all 5 mission phases of preparedness: **Prevention, Protection, Mitigation, Response, and Recovery.**

The selection process for hazard mitigation alternatives included the following criteria to evaluate the feasibility of potential activities (for more information, please see Chapter 5):

- Likelihood of actual opportunities for project implementation.
- Potential for a large number of persons to be affected by the hazard.
- Potential for a wide geographic area to be affected by the hazard.
- Potential for serious harm to be inflicted by the hazard upon persons in the community.
- Potential for the hazard to inflict economic hardship upon the community.
- Extent to which a project's benefits will outweigh its costs.

### **The Kalamazoo County Disaster Committee (KCDC) and “Community Lifelines”**

In accordance with the new emphasis of FEMA on a "Community Lifelines" approach to disaster response in a revised National Response Framework, the KCDC organizational structure is in the process of being aligned to those 7 lifeline sectors, as identified by FEMA, beginning in 2019. Kalamazoo County will be one of the first jurisdictions in the country to follow this new paradigm. Those 7 primary Lifeline Sectors and their iconography are:



There are numerous potential benefits to be realized with this new system. First and foremost is that it simplifies communications in the response and recovery phases of an event. The icons can be color-coded to reflect the status of the individual Lifelines and their subcomponents (this color-coding will be explained in more detail in Chapter 3: Core Capabilities and Community Lifelines). This can help direct resources and streamline the response to more quickly stabilize the event. This in itself can be seen as a mitigation activity. Another key benefit is that this construct, if implemented within the Kalamazoo County Disaster Committee organizational table, allows a flexible, incident-specific activation of the Emergency Operations Center. On initial activation, only those representatives representing Lifeline Sectors actually immediately affected would be called upon, but as the incident evolves, additional personnel can be added or released as sectors stabilize or are needed for response and recovery efforts. The Planning Team feels that these and other advantages can and should also be leveraged in the pre-disaster or pre-event stages, including mitigation planning. The simplification and visual tools can be used to better communicate lifeline status with stakeholders, including the general public and community leadership. While constraints of time and resources currently make a full, across-the-board transition to a Community Lifelines-based system for Kalamazoo County's disaster response and emergency planning impractical, this Plan will reflect the initial effort to integrate the concepts and constructs of Community Lifelines to the extent possible. We have included in Chapter 3: Core Capabilities and Community Lifelines outlines for each of the 7 sectors and how they may fit into our local preparedness and response structures.

The plan is an affirmation by its participants, and the organizations and communities they represent, to a commitment to continue in this cooperative effort for the good of the communities and agencies of the County. The adoption of this plan also signifies their intention to continue the evaluation, modification, and the general evolution of its creation and deployment. Communities served by and participating in this plan are supportive of the outcome and benefits that the plan seeks to provide and express their support in the ongoing development and deployment of mitigation activities that will benefit the whole community.

Kalamazoo County's ability to prepare for and respond to hazards must be dynamic and flexible, because the County itself is dynamic. Shifts in population, land use, climate, and other factors must be acknowledged and addressed.

In keeping with the all-hazards approach promoted by the FEMA, Kalamazoo County has built an emergency management system that is designed to address the multitude of hazards the County faces. Those hazards; natural, technological, and human-caused, present a variety of challenges to Kalamazoo's governmental agencies, local communities, businesses and industries, and individual citizens. While many of the hazards may not affect our lives on a daily basis, the threat is always there from at least a few hazards, and each threat needs to be addressed through appropriate hazard mitigation and emergency preparedness efforts at the state, local, and individual levels, because failure to do so may result in needless and tragic loss of life and property, as well as significant economic and social disruption.

# Chapter 1: Community Profile

## Geographic Description of Kalamazoo County

Kalamazoo County is in southwestern Michigan, with Van Buren County neighboring on the west and Calhoun County to the east. The county is approximately 140 miles equidistant from both Chicago and Detroit. Interstate 94 bisects the county east/west. Another major highway, US-131, runs north/south through the county. These two highways intersect in the western third, near the center of Kalamazoo County. The county is composed of 576 square miles of land, roughly squared 24 miles by 24 miles. Over 50,000 acres, or more than 15% of the land is considered “developed.” The largest single land use category in the county is agriculture. It accounts for over 138,000 acres, or more than 40% of the land area in the county. In contrast, commercial and industrial lands each occupy less than 6% of the total land area.

The Kalamazoo River is the most prominent natural feature in our county as it meanders from east toward north to flow into Lake Michigan. The river serves as a natural focal point for the many and varied recreational and economic opportunities it presents to residents and visitors alike. The County is coordinating the development of the 35-mile Kalamazoo River Valley Trail (KRVTr). Over twenty-four miles of the trailway are completed and well-transited. This existing trail and planned trails in other counties will connect more than 140 miles of trails-connecting together the Battle Creek Linear Park, the Kal-Haven Trail, and the Portage Bicentennial Park Trail. There are six other rivers or streams in our county, and 88 lakes or reservoirs with 20 access points for boating and fishing. These assets make Kalamazoo County a destination for inland fishing and summer water recreation (Kalamazoo County Parks and Recreation Commission, 2016).

## Kalamazoo County Civil Structure

Kalamazoo County contains 24 local units of government, including 15 townships, 5 villages, and 4 cities. The City of Kalamazoo is the county seat. These communities are currently represented by a total of 11 County Commissioners. The following table lists all 24 of the local units of government with their population data and trends from the United States decennial census, or the most recent estimated figures available (2019).

| Minor Civil Division            | 2010 population | 2020 population<br>(JUL/2019 Est.) | Change in<br>population |
|---------------------------------|-----------------|------------------------------------|-------------------------|
| Alamo Township                  | 3,762           | (3,928)                            | +4.1%                   |
| Augusta Village* (in Ross TWP)  | 885             | (900)                              | +1.7%                   |
| Brady Township                  | 4,248           | (4,399)                            | +3.6%                   |
| Charleston Township             | 1,975           | (2,071)                            | +4.6%                   |
| Climax Township                 | 2,463           | (2,583)                            | +4.7%                   |
| Climax Village* (in Climax TWP) | 767             | (805+)                             | +5.0%                   |
| Comstock Charter Township       | 14,854          | 15,231                             | +2.5%                   |
| Cooper Charter Township         | 10,111          | 10,418                             | +3%                     |
| Galesburg City                  | 2,009           | (2,128)                            | +5.9%                   |
| Kalamazoo City                  | 74,262          | (77,733)                           | +4.7%                   |
| Kalamazoo Charter Township      | 21,918          | 22,777                             | +3.9%                   |
| Oshkosh Charter Township        | 21,705          | 23,747                             | +9.4%                   |
| Parchment City                  | 1,804           | (1,826)                            | +1.2%                   |
| Pavilion Township               | 6,222           | 6,387                              | +2.7%                   |
| Portage City                    | 46,292          | (48,978)                           | +5.8%                   |
| Prairie Ronde Township          | 2,250           | (2,379)                            | +5.3%                   |
| Richland Township               | 7,580           | 8,693                              | +14.7%                  |
| Richland Village*               | 751             | (789)                              | +5.0%                   |
| Ross Township                   | 4,664           | (4,912)                            | +5.3%                   |
| Schoolcraft Township            | 8,214           | 9,183                              | +11.8%                  |
| Schoolcraft Village*            | 1,525           | 1,431^                             | -6.1%                   |
| Texas Charter Township          | 14,697          | 17,691                             | +20.4%                  |
| Vicksburg Village*              | 2,906           | (3,080)                            | +6.0%                   |
| Wakeshma Township               | 1,301           | (1,322)                            | +1.6%                   |
| KALAMAZOO COUNTY TOTAL          | 250,331         | 262,432                            | +5.9%                   |

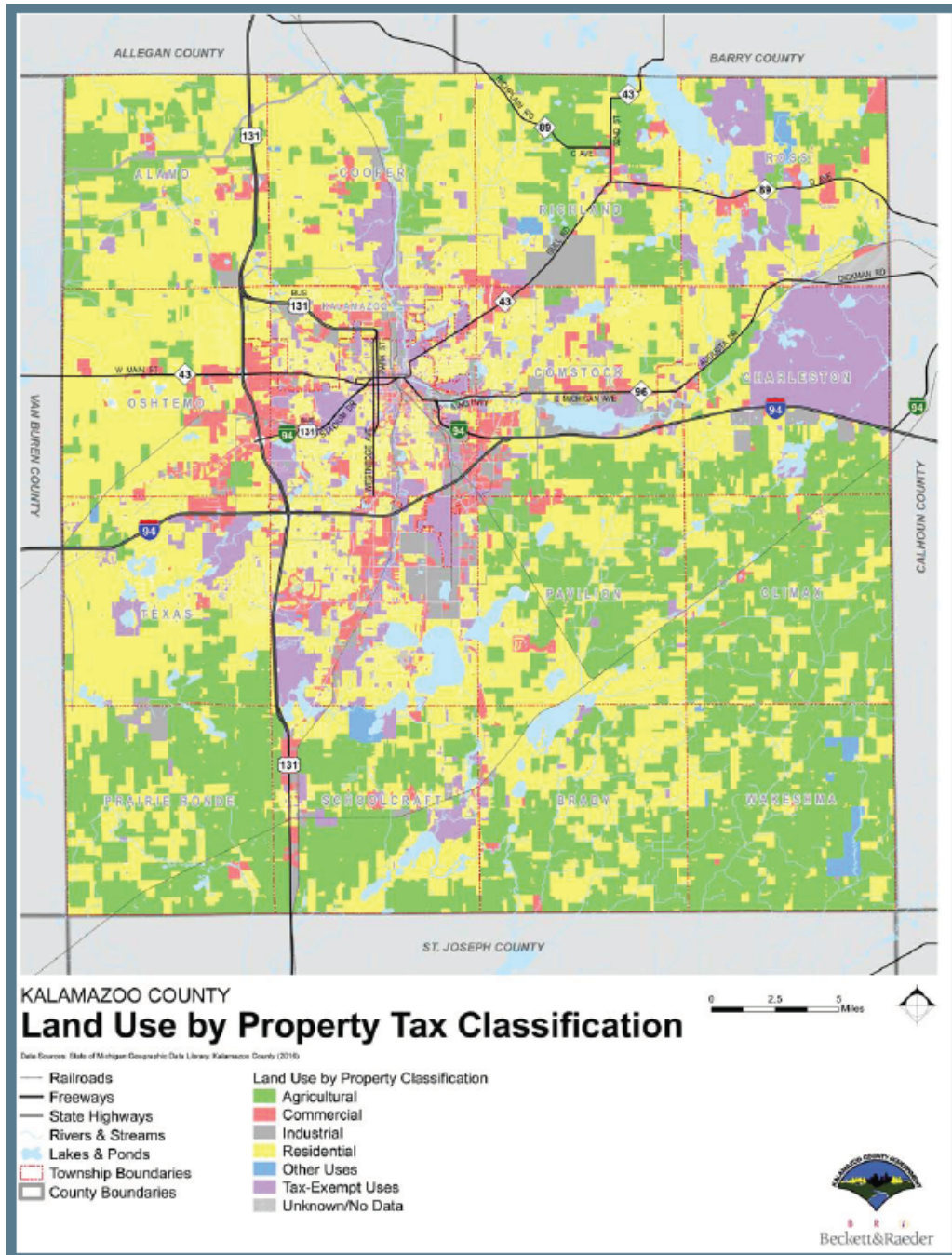
\*NOTE: Village populations are included within the townships of which they are a part. Augusta is part of Charleston and Ross Townships, Climax is part of Climax Township, Richland is part of Richland Township, Schoolcraft is part of Schoolcraft Township, and Vicksburg is part of Brady and Schoolcraft Townships.

+ Updated population information for the villages of Climax and Vicksburg was unavailable at time of publication. Numbers are estimated based on township population averaged numbers.

^ Schoolcraft Village population is per their Master Plan, 2016 numbers most recent available.



## 2018 Kalamazoo County Current Land Use Map

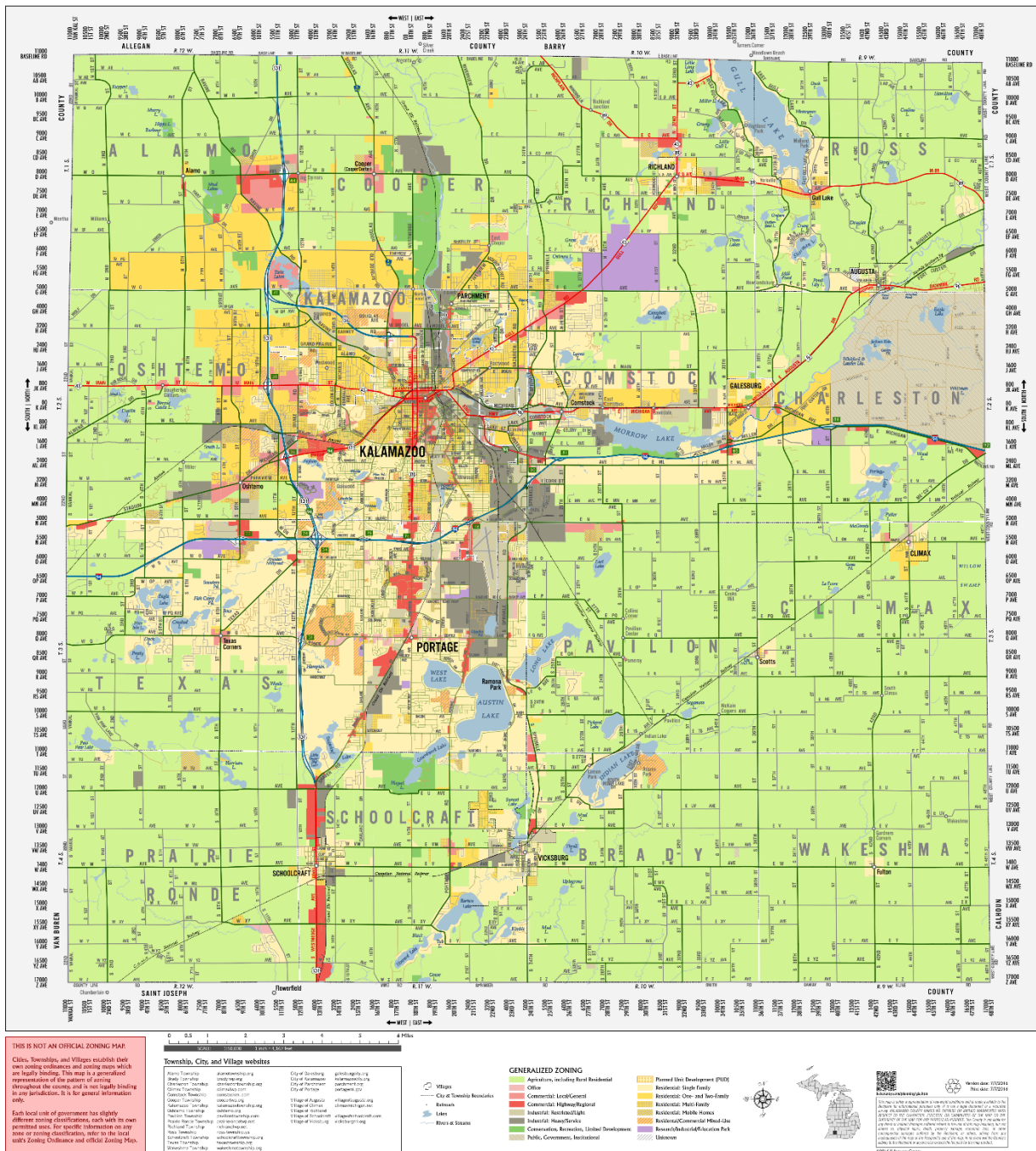


This map is the most current land use map for Kalamazoo County. (Credit to 2018 Kalamazoo County General Plan)



# Generalized Zoning

KALAMAZOO COUNTY, MICHIGAN



**Note:** Kalamazoo County does not have a county-wide zoning ordinance. Instead, each of the 24 local units of government (cities, villages, and townships) establishes its own zoning ordinance and an official zoning map.

Kalamazoo County has replaced their old GIS (Geographical Information Systems) mapping website with an ArcGIS On-line application. This enables all stakeholders and interested parties to access an interactive “layered” map set that greatly enhances public awareness if properly promoted and utilized.

## Existing Land Uses in Kalamazoo County

| Developed Land Use Categories | Percent of County (%) |
|-------------------------------|-----------------------|
| Residential                   | 8                     |
| Commercial                    | 3                     |
| Industrial                    | 2                     |
| Institutional                 | 1                     |
| Transportation                | 3                     |



|                        |      |
|------------------------|------|
| (Total Developed Area) | (17) |
| Agriculture            | 40   |
| Wooded Land            | 23   |
| Open Land              | 12   |
| Water and Marsh        | 8    |
| TOTAL                  | 100  |

The County contains a few fast-growing communities, many of which are townships. As seen in the map above, the land use trends in these communities stems from the development of new suburban and exurban (i.e., commuter-oriented) residential areas, and the local commercial outlets that serve them. In a few areas, newer residential developments abut woodland and/or overgrown areas with enhanced fire fuel loads. (These urban-woodland interface areas do present some concern in mitigation and are discussed briefly in Chapter 4.) The overall land use development trends in the County remain consistent from the previous plan revision.

Kalamazoo's population trend over recent decades has been general, steady growth as follows:

| 1960    | 1970    | 1980    | 1990    | 2000    | 2010    | 2019(est.) |
|---------|---------|---------|---------|---------|---------|------------|
| 169,712 | 201,550 | 212,378 | 223,411 | 238,603 | 250,331 | 265,066    |

*\*Note: According to official 2020 Decennial US Census data, the total population of Kalamazoo County is 261,670. While a downturn deviation from the 2019 estimates used above, the difference is not statistically significant to this plan update. No local jurisdictions exceeded the 10,000-resident threshold that were not in that category in the 2010 count.*

The County offers a quality standard of living, a wide range of resources, a diversified economy, several institutions of higher education, affordable housing, excellent medical facilities, a variety of retail and service establishments, valuable agricultural land, and many natural features and recreational opportunities.

## **Topography**

The county is quite diverse from a topographic standpoint. With few minor exceptions, the entire County lies within a highly habitable zone of 700 to 1,000 feet above sea level. The largest portion of the County lies between 850 and 900 feet of elevation. Most of this area is in the form of an extensive plain in the south-central part of the County, south of the Kalamazoo River. The major lowland in the County is the trough of the Kalamazoo River and its tributary extensions. The majority of the upland occurs in the western and northern portions of the County. In essence, most of Kalamazoo County is characterized by gently rolling to quite level landforms.

## **Landforms**

There are several basic landforms in the county that were created by the ancient ice sheet that covered the region thousands of years ago: till plains, moraines, outwash plains and channel/lakebed deposits. Till plains are typically undulating landforms, with depressed areas that are frequently poorly drained and swampy and occupy only about 13% of the County's land area. A special feature of till plains occurs in Wakeshma Township, called drumlins, with teardrop-shaped hills that are relatively uncommon and provide a scenic resource.

Moraines are typically between one and five miles wide and are characterized by hills and depressions in close proximity, with the moraine's ridges often rising 100 feet or more above adjoining out-wash, glacial lake, or spillway deposits. The highest point in the county is a moraine hill in Oshtemo Township, which has an altitude of 1,040 feet, 275 feet above the bed of the Kalamazoo River.

Outwash plains are low-relief plains with topographic changes of only a few feet per mile. The outwash plain is the predominant landform in Kalamazoo County, constituting about 47% of its land area. Except in the rougher or depressed areas, outwash plains are generally suitable for most forms of development. Less variation exists between the drainage channels (now occupied by small streams) and the adjoining outwash or till plains. These courses now tend to be occupied by swamps and muck. This substantial area amounts to about 21% of the County's total area.

The County's soils reflect strong glacial influences. The till plains are un-stratified and contain more clay than other areas. The moraines are more stratified and contain primarily sand and gravel. Outwash plains are generally stratified and composed of loams, sandy loams, and gravelly soils. These four landforms constitute the entire landscape of the area.

The soil characteristics impose few significant constraints on development. Excessive slopes occur in only small, isolated areas. Inadequate percolation is characteristic of only a small percentage of the soils. The sandy composition of most of the soils provides strength and stability for structural foundations. About half of the area is considered to have good agricultural soils. Soil types and associations are widely varied throughout the County.

## **Climate**

Lake Michigan, which is about 43 miles west of Kalamazoo, exerts a significant influence on the climate in the area. The lake temperature, together with the prevailing westerly winds, moderates early seasonal temperature extremes. In the early spring, the cool lake water tends to keep air temperatures lower, thus retarding early plant growth until the likelihood of frost is diminished. In the autumn, the warmed lake water delays the onslaught of cold weather. The growing season in the area averages about 153 days.

The frequent and sometimes rapid changes caused by storms sweeping across the lakes from the west and southwest are typical of a humid continental climate. Seasonal temperature variations and precipitation patterns are typical of this climate type. Weather hazards can generally be split into those pertaining to two parts of the year: winter and non-winter. A "season" of primary risk for winter weather hazards tends to run from late November to early April, while a "season" of primary risk for non-winter weather hazards tends to run from early May to late September. Recent evidence of climate change may be connected with a greater chance of the non-winter risk season expanding over time. ***The State of Michigan Hazard Analysis (July 2019 edition)*** includes a new section (beginning on page 263) dedicated to a discussion of climate trends, and possible effects on Michigan weather event resiliency. That section is a valuable and cogent narrative on this subject.

The average annual temperature is 48.41 degrees Fahrenheit (F), with monthly averages varying between 18.0 degrees F in January to 86.0 degrees F in July. Historic temperature records at the nearby weather station in Bloomingdale (Van Buren County) show a record low temperature of -23 degrees, and a record high temperature of 105 degrees.

Precipitation averages 33.99 inches annually. Monthly averages vary between 1.70 inches in February to 3.68 inches in June. The annual snowfall averages 69.7 inches. Historic records at the nearby weather station in Bloomingdale record a record precipitation event of 9.78 inches and a record snowfall event of 20.0 inches. Kalamazoo experiences about 36 to 38 thunderstorm days per year.

## **Water**

The County has an unusually large number of bodies of water, including ponds, lakes, and rivers. Perhaps the most significant body of water is the Kalamazoo River. It extends from northern Hillsdale County to Lake Michigan and is approximately 185 miles in length. Lakes and ponds are so plentiful in Kalamazoo County that it is difficult to obtain a completely accurate count of their numbers, or an accurate measure of their total surface area. According to the an inventory of Michigan Lakes, however, there are approximately 418 lakes and ponds in the County, and approximately 3.2 percent of its area is occupied by surface water, including rivers and streams. The sizes of lakes and ponds range from under one to over 1,000 acres. The majority of the surface water bodies are relatively small and generally less than 100 acres in size. The larger lakes throughout the County are generally well populated with residential development.

Although lakes and ponds are plentiful in all areas of the County, their distribution is not uniform. Major concentrations occur in Comstock, Richland, Ross, Pavilion, Schoolcraft and Brady Townships, as well as the City of Portage. Lesser concentrations are found in moraine depressions in Charleston, Oshtemo and Texas Townships and in the glacial lake flats of Alamo and Kalamazoo Townships. In contrast, the till plain areas of Wakeshma, Cooper and Prairie Ronde Townships are virtually lake-free.

One of the largest and deepest lakes in the area is Gull Lake, which is located within both Ross and Richland Townships, in the northeast corner of the County. The area around Gull Lake is primarily residential in character, with a majority of

its 20 or so miles of shoreline developed into single-family lots. Recreational opportunities are enhanced by the two public accesses to the lake.

Some other large lakes worth noting are: Austin Lake and West Lake, located in Portage; Long Lake, shared by Pavilion Township and the City of Portage; and Indian Lake, shared by Pavilion Township and Brady Township. One large impoundment associated with the Kalamazoo River is Morrow Lake, which was created to supply County residents with hydroelectric power. Morrow Lake is located in Comstock Township, just north of Interstate 94. River Oaks County Park is located on the north shore of the Morrow Lake.

Kalamazoo County has the largest groundwater pumping area of any community east of the Mississippi -- with 13 pumping centers for freshwater - serving 150,000 customers. There are four types of water wells, identified as Type I (Municipal, serving 25 or more people 24 hours per day for 60 or more days), Type II (serve 25 or more people for 60 days -- example: Township Halls), Type III (duplex or small businesses with less than 25 employees, and Domestic, or Type IV (private individual water wells). Kalamazoo County has thousands of these wells, and Michigan overall has the most domestic well users in the nation at nearly 2.5 million people.

## **Agriculture in Kalamazoo County**

The State of Michigan is second only to California in the number of microclimates that contribute to agricultural crop/product diversity. Coastal exposure on the Great Lakes and weather patterns associated with unique geographic features are major contributing factors. Kalamazoo County hosts a robust, diverse, and economically vital ag industry as a result.

Here are some statistics to illustrate the overall importance of the agriculture sector to Kalamazoo County (courtesy of Michigan State University Extension and USDA/AgCensus-2017 County Profile):

There are more than 700 farms in the county, totaling over 138,000 acres. Total market value of ag products in 2017 was over 236 million dollars. 75 percent of our ag industry is crop-related, and 25 percent livestock, poultry, and products (including dairy). Primary ground crops are soybeans and corn, but nursery and greenhouse operations (including cut flowers) represent a greater portion of ag crop revenues than all others combined. In fact, Kalamazoo County ranks second in Michigan in this crop sector and in the top 25 of all counties nationwide. This adds vulnerabilities since those operations rely on buildings and structures and utility deliveries that are more exposed to potential damage and are therefore more difficult and time-consuming to rebuild.

## **Vegetation**

Settlers in Kalamazoo County came upon vegetation that is typical of the northern hardwood forest: rich, thick stands of Maple, Elm, Hickory, Sycamore and scattered stands of Walnut, Beech and Cherry. Most of these species still dominate the more rural areas of the County, however the size of the stands has diminished.

Approximately 60,637 acres, or 18.35%, of the County is woodland. The woodlands occupy both the slope lands and depressed areas of the County, providing ground cover, maintaining water tables, retarding run-off, influencing the microclimate of nearby areas and occasionally yielding a forest crop. They are also a scenic resource benefiting the value of property and beautifying the landscape for the enjoyment of County residents. There also exist scattered stands of coniferous-forested lands.

Various areas of the County that had historically been characterized by tall grasses and scattered Burr Oak trees have been replaced by major cash crops, such as corn, soybeans, wheat and oats. However, Burr Oak trees still line many of the County's rural roads and are found standing isolated in many fields.

**Additional Census Data (Note: Unable to update some of this demographic data as full 2020 Census data sets were not yet available at time of writing.) Kalamazoo County (2020 population: 261,670)**

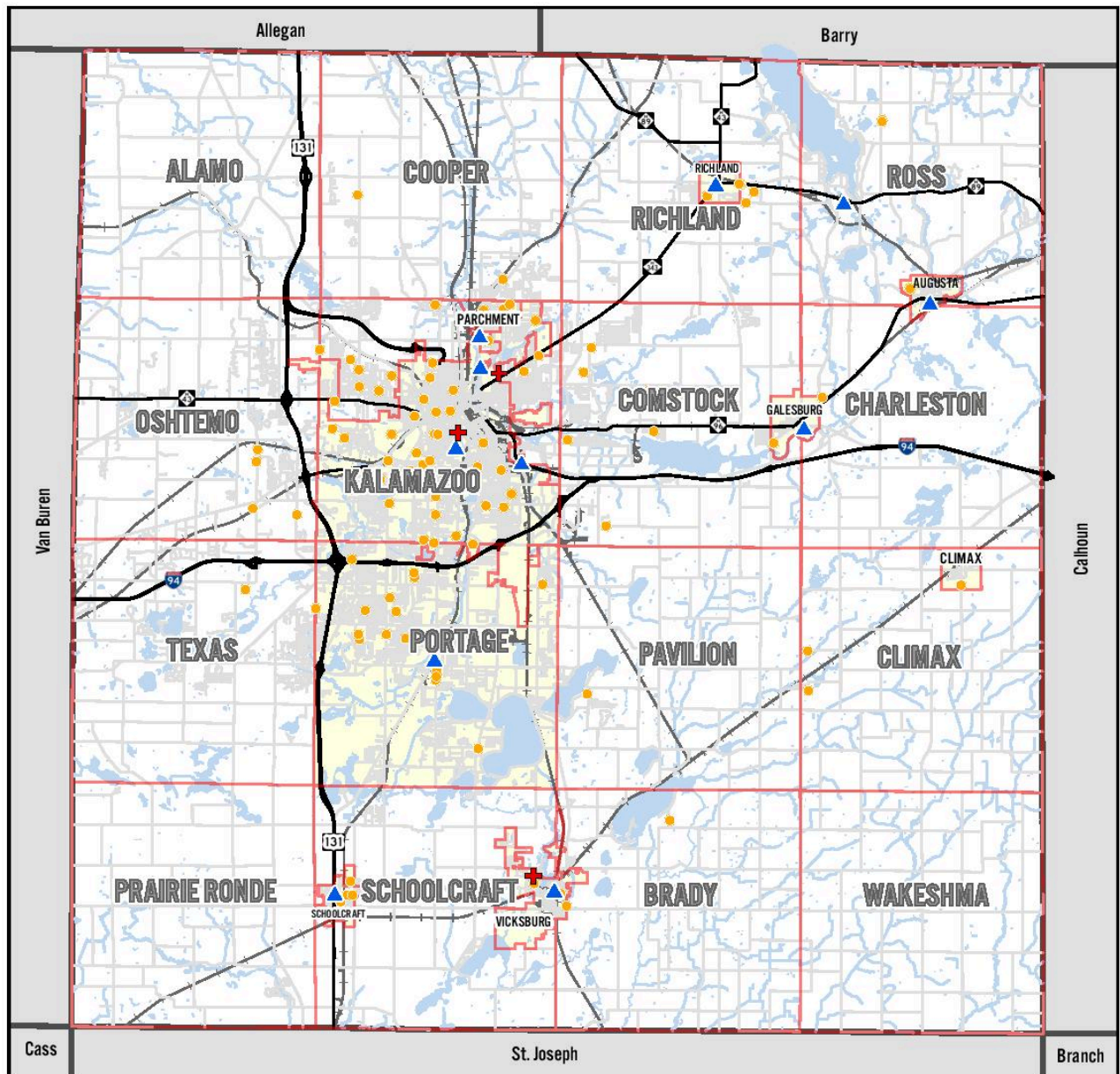
**Population and Housing Units**

| Kalamazoo County     | 2010            | 2000            | Difference      |
|----------------------|-----------------|-----------------|-----------------|
| Total population     | 250,331         | 238,603         | +11,728 (+4.7%) |
| Male                 | 122,569 (49.0%) | 115,376 (48.4%) | +7,193 (+6.2%)  |
| Female               | 127,762 (51.0%) | 123,777 (51.9%) | +4,535 (+3.2%)  |
| Home value <\$50K    | 5,178 (8.1%)    | 3,919 (7.7%)    |                 |
| \$50K-\$99K          | 12,659 (19.9%)  | 18,818 (36.8%)  |                 |
| \$100K-\$149K        | 16,132 (25.3%)  | 15,272 (29.8%)  |                 |
| \$150K-\$199K        | 12,931 (20.3%)  | 7,046 (13.8%)   |                 |
| \$200K-\$299K        | 9,178 (14.4%)   | 4,102 (8.0%)    |                 |
| \$300K and above     | 7,567 (11.9%)   | 2,037 (4.0%)    |                 |
| Median housing value | \$143,800       | \$108,000       |                 |

**Employment by Industry**

| Industry                             | 2010           | 2000           |
|--------------------------------------|----------------|----------------|
| Agriculture, Forestry, Fishing       | 1,497 (1.3%)   | 1,303 (1.1%)   |
| Construction                         | 3,825 (3.3%)   | 6,747 (5.7%)   |
| Manufacturing                        | 20,035 (17.5%) | 24,648 (20.8%) |
| Wholesale Trade                      | 3,336 (2.9%)   | 3,740 (3.2%)   |
| Retail Trade                         | 14,024 (12.3%) | 14,169 (12.0%) |
| Transportation, Warehousing          | 3,581 (3.1%)   | 3,814 (3.2%)   |
| Information                          | 1,019 (0.9%)   | 2,453 (2.1%)   |
| Finance, Insurance, Real Estate      | 6,904 (6.0%)   | 6,948 (5.9%)   |
| Professional                         | 9,616 (8.4%)   | 8,501 (7.2%)   |
| Educational, Health, Social Services | 30,520 (26.7%) | 29,148 (24.7%) |
| Arts, Entertainment, Recreation      | 12,717 (11.1%) | 10,446 (8.8%)  |
| Other Services (exc. Pub. Admin.)    | 4,782 (4.2%)   | 5,667 (4.8%)   |
| Public Administration                | 2,353 (2.1%)   | 3,156 (2.7%)   |
| Total Workers Age 16+                | 114,209        | 118,220        |

*NOTE: The sources used are predominantly the 2000 and 2010 U.S. Censuses.*



# Kalamazoo County Public Support Locations

- + Hospitals
- ▲ Police Stations
- Schools
- Freeways
- State Highways
- Primary Roads
- Railroads
- Streams
- Lakes
- Cities & Villages
- County Boundaries



## **Community Resources for Disaster Assistance**

In addition to the Kalamazoo County Disaster Committee, already described in this plan, there are additional agencies within the county that have roles and resources that are relevant for hazard mitigation activities. The following is a list of some of these, with a brief description and contact information.

### **Office of Emergency Management (Kalamazoo County Sheriff's Office)**

**1500 Lamont Ave., Kalamazoo, MI 49048**

**(269) 383-8743**

This office was established under the provisions of the Michigan Emergency Management Act, PA 390 of 1976, as amended, and the county's 1993 emergency management resolution, to ensure a coordinated public response in the event of a natural, technological, or human-caused disaster. Emergency management in Kalamazoo County is a comprehensive approach involving a range of public and private agencies including local police, fire and EMS agencies, the Michigan State Police Emergency Management and Homeland Security Division, the Michigan Department of Environmental Quality, the 5th District Homeland Security Board and the National Weather Service. Other agencies coordinated with emergency management include the American Red Cross, local and state health departments, educators and amateur radio operators. This office tends to be central for all major threats and incidents within the county.

### **Kalamazoo County Sheriff's Office**

**1500 Lamont**

**Kalamazoo, MI 49048**

**(269) 383-8821**

**The Sheriff's Office provides law enforcement and services to protect the lives and property of Kalamazoo County citizens—enforcing State laws and local ordinances, investigating crimes, and detaining prisoners remanded to the county jail. This is accomplished in a manner that maintains the highest degree of professional excellence, integrity, and courtesy. Sheriff's Office personnel would be involved in protective actions during a serious community emergency.**

### **Health and Community Services Department**

**311 East Alcott St., Kalamazoo, MI 49001**

**269-373-5200**

This Department exists to improve the overall health of the community through coordinated planning, resource development, and service delivery. The human impacts of hazards may require their involvement. Public health emergencies threatening the area would certainly involve this department.

### **Michigan State University Extension – Kalamazoo Office**

**201 W. Kalamazoo Ave.**

**Suite 306**

**Kalamazoo, Michigan 49007**

**Phone: 269-383-8830**

The office is involved in various educational and outreach activities involving agriculture and health. They should be valuable in events concerning such matters, such as droughts, pandemics, etc.

### **Kalamazoo County Planning & Development Department**

**201 West Kalamazoo Avenue**

**Kalamazoo, Michigan 49007**

**Telephone: (269) 384-8112, Fax: (269) 383-8862**

The Kalamazoo Metropolitan County Planning Commission provides recommendations on zoning amendments at or near municipal boundaries, farmland agreements, preliminary plats, and future land use plans, and should include hazard assessment and mitigation concepts in these recommendations and zoning patterns. The Department helps to

coordinate developmental activities (physical or socio-economic) affecting more than one unit of government (i.e., land use plans and zoning along borders, utility extensions, and infrastructure changes) and provides a forum for the discussion of plans and community development activities affecting neighboring counties (i.e., solid waste management plan, economic development). They can act as liaison between County and other levels of government, public and quasi-public agencies in matters related to community development (i.e., Southwest Michigan First, Kalamazoo Area Transportation Study). Hazard Mitigation tend to require coordination between multiple jurisdictions, and thus can benefit from the involvement of the planning department.

### **Kalamazoo County Road Commission**

**3801 East Kilgore Road**

**Kalamazoo, Michigan 49001**

**Phone: (269) 381-3171**

The Board of County Road Commissioners of Kalamazoo County uses their expertise, energy, and funds to provide the safest and most convenient road system possible and contributes to economic development and the high quality of life throughout the county. Their goal is to maintain a county road system that is safe and convenient for public travel and to manage the roadside environment, with a view toward preservation. The Kalamazoo County Road Commission (KCRC) maintains 1,264.81 miles of road throughout the 576 square mile county. The primary road system consists of 449.28 miles; the remaining 814.53 miles constitute the local system. Along with maintenance operations, they maintain 61 bridges, over 19,300 signs, 46 traffic signals, and 41 flashing lights at intersections. They should be involved in long-term hazard mitigation or short-term emergency adjustments involving the county transportation network.

### **Kalamazoo County Transportation Authority (KCTA)**

**530 N. Rose Street**

**Kalamazoo, MI 49007**

**(269) 337-8087**

The purpose of the Kalamazoo County Transportation Authority is to plan, promote, finance, acquire, improve, enlarge, extend, own, construct, operate, maintain, replace, and contract for public transportation service by means of one or more public transportation systems and public transportation facilities within the jurisdictional boundaries of the County of Kalamazoo. They may have resources useful for the transportation or evacuation of residents during emergency situations.

### **Office of the Kalamazoo County Drain Commissioner**

**201 West Kalamazoo Avenue**

**Kalamazoo, Michigan 49007**

**Phone: (269) 384-8117 - Fax: (269) 383-8920**

The mission of this office is to provide for the health, safety and welfare of Kalamazoo County citizens, the protection of surface waters and the environment, and to promote the long-term environmental sustainability of Kalamazoo County by providing storm water management, flood control, soil erosion controls and education. The office is particularly relevant for hydrological hazards.

### **City of Kalamazoo (2020 population 77,733)**

Founded in 1831 as the Village of Bronson and renamed in 1836 as Kalamazoo, the city provides a diverse mixture of old and new. The city is the main population center, transportation node, County Seat, and the primary urban focus within the county. The following city departments are most relevant to emergency management and hazard mitigation considerations.

## **Department of Community Planning and Development**

### **Planning Division**

**415 Stockbridge Ave.**

**Kalamazoo, MI 49001**

**269-337-8044 (269) 337-8044**

The mission of the Community Planning & Development Department is to assist with the creation of a healthy, safe and sustainable community of choice, through leadership, education, partnerships and stewardship of resources and assets. The Community Planning & Development Department includes three primary areas of focus: Planning, Code Administration (Housing, Building & Trades, Zoning), and Community Development. The City's Economic Development Division is housed along with the Community Planning & Development Department and works collaboratively with both internal and external partners to achieve local development goals. The Planning Division works with current land use planning, future land use planning and historic preservation. Using the 2010 Master Plan and the city's Code of Ordinances, Planning staff directs future growth, redevelopment and historic preservation to help create a better, more sustainable community. The Planning Division supports the work of the Planning Commission, Historic District Commission and Historic Preservation Commission. The City's 2010 Master Plan, "Plan Kalamazoo," includes floodplain considerations and can be found here: [http://www.kalamazoo-city.org/portal/government.php?page\\_id=826](http://www.kalamazoo-city.org/portal/government.php?page_id=826). Ideally, other types of hazards would also be included in a future edition of this plan.

### **Kalamazoo Department of Public Safety**

**Emergency: 911; Non-Emergency: (269) 337-8994**

The Kalamazoo Department of Public Safety combines law enforcement and fire services into a unified organization with a goal of providing the highest level of professional public service to the community. Their diverse force has more than 300 persons and incorporates modern technology and comprehensive training techniques to enhance the organization's overall effectiveness, while continually striving to meet the challenges of the future. They have resources that would be vital for emergency response activities in any incident/threat that involves the City.

### **City of Kalamazoo Department of Public Services**

**241 W South St**

**Kalamazoo, MI 49001**

**(269) 337-8808**

The department oversees the provision of city services such as waste disposal, fresh water supply, and storm drainage systems. They would have important resources to help deal with disasters or emergencies involving debris, water, and drainage systems.

### **City of Portage (2020 population: 48,978)**

Portage is the second largest community in the county, and it has been a city since the 1960s. Its current city departments include the following.

The Department of Community Development has responsibility for planning and growth, and for private development projects, in order to maintain and improve the safety and overall quality of life in the community. The Department includes the Planning, Development, and Community Services Division, which oversees land development regulations, provides professional services to support the activities of the Planning Commission. 7900 South Westnedge Avenue, Portage, Michigan 49002. Phone: 329 4474. The city's latest comprehensive community plan was completed in 2008.

**The Department of Public Safety** is responsible for the overall management of departmental activity including community relations, resource allocation, labor relations, research and planning, contracts and many other administrative functions. Phone: (269) 329-4567.

**Streets Maintenance Division** handles things like snow removal and household hazardous waste disposal. 7719 South Westnedge Avenue. Phone: (269) 329-4444.



**The Transportation & Utilities Department** is responsible for the transportation (traffic signals, signing, and streetlights) and utility (public water, storm sewer, and wastewater) systems. 7719 South Westnedge Avenue. Phone: (269) 329-4422.

**Kalamazoo Charter Township (2020 population: 22,777)**

The township offices are located at 1720 Riverview Drive, and the most relevant township departments for emergency situations and planning are the Police, Fire, and Building Departments. The Building Department handles zoning and land use regulations within the township (in addition to various types of inspections). The township's law enforcement personnel also provide coverage to the City of Parchment.

**Oshtemo Charter Township (2020 population: 23,747)**

The township offices are located at 7275 West Main Street, and the general phone number is (269) 375-4260. The departments most relevant to emergency issues are the Fire Department, the Building and Safety Department, and the Planning and Zoning Department, with that last department actually merging in with the Kalamazoo Area Building Authority (KABA) to together cover three additional townships (Comstock, Cooper, and Kalamazoo). The Fire Department is located at 7275 West Main Street, Kalamazoo, MI 49009, phone number (269) 375-0487. The Township's new Master Plan was just completed within in 2011-2012. The Planning and Zoning Department is located at 7275 West Main Street, and its phone number is (269) 216-5223.

**Comstock Charter Township (2020 population: 15,231)**

The township offices are located at 6138 King Highway, and the general phone number is (269) 381-2360. The departments most relevant to emergency issues are the Fire and Rescue Department, the Building Department, the Township Boards and Commissions Department, and the Ordinance Department. The Township Boards and Commissions Department includes the Planning Commission, the Zoning Board of Appeals, and the Building Board of Appeals. The Fire and Rescue Department is located at 8700 East Michigan Avenue, Galesburg, MI 49053, phone number (269) 381-0804.

**City of Parchment (2020 population: 1,826)**

The city offices are located at 650 South Riverview Drive, and the general phone number is (269) 349-3785. The departments most relevant to emergency issues are the Kalamazoo Township Police Department, the city Public Works Superintendent, and the Parchment City Commission. The City of Parchment entered into a cooperative services agreement with the Charter Township of Kalamazoo for the provision of police services. The Kalamazoo Charter Township Police Department is located at 1720 Riverview Drive, Kalamazoo, MI 49004, phone number (269) 343-0551. The Public Works Superintendent's phone number is (269) 344-6400.

**Authorities, Center, Programs, etc., that address Hazards/Events (from 2013 KCHMP)**

**Sabotage/Terrorism/Weapons of Mass Destruction (WMD)**

The federal Office of Homeland Security coordinates the many counter-terrorism functions scattered across numerous federal agencies and organizations and works closely with state and local police and fire agencies, emergency response teams, and emergency management agencies in formulating and carrying out the National Homeland Security Strategy.

**Metropolitan Medical Response System:**

One of the key features of the federal response element is the formation of highly skilled and mobile Metropolitan Medical Response Systems (MMRS) to provide medical care in incidents involving nuclear, chemical or biological terrorism. The nearest MMRS facility is in Grand Rapids. In case of an incident that may involve nuclear, chemical or biological weapons, this MMRS would be mobilized to provide initial, on-site response, in addition to providing for patient transportation to hospital emergency rooms. The MMRS are self-contained and capable of providing both medical and mental health care to victims. Should local health care resources be overrun, they will assist in preparing to move victims to other regions.

The U.S. Department of Health and Human Services (HHS) coordinates the MMRS program. The West Michigan Metropolitan Medical Response System in Grand Rapids has a goal of coordinating the efforts of local law enforcement, fire, HAZMAT, EMS, hospital, public health and other personnel to improve response capabilities in case of a terrorist attack.

### **51<sup>st</sup> WMD Civil Support Team:**

The Michigan National Guard, 51st WMD/Civil Support Team, provides additional support for the RRTN. Stationed at Fort Custer (Battle Creek), the 51st WMD/Civil Support Team deploys to a WMD or suspected WMD incident in support of the local incident commander to: assess a suspected nuclear, chemical, biological or radiological event; advise the Incident Commander on appropriate courses of action to protect the local population; assist with appropriate requests for state additional support. They also provide informational briefings, exercises, and cross training activities with state and local first responders.

### **SNS – The Strategic National Stockpile Program:**

Presidential Decision Directive 62, issued by President Clinton in May 1998 ordered federal agencies to take significantly expanded and better-coordinated steps to protect against the consequences of biological and other unconventional attacks, especially potential bio-terrorism directed at civilian populations. One of the major bio- terrorism initiatives of the U.S. Department of Health and Human Services (HHS) in response to this PDD is the development of the Strategic National Stockpile – a national repository of lifesaving pharmaceuticals and medical materials that will be delivered to the site of a major medical emergency in order to reduce morbidity and mortality in civilian populations. The decision to send the SNS is a collaborative effort between local, state, and federal officials in a process whereby local health departments and emergency management officials contact the Michigan State police Emergency Management Division, and state health officials who recommend to the Governor that a formal request for the SNS is made to the CDC.

The stockpile is activated to support a local and or state response to an emergency within the US or its territories. The two major components of the stockpile are the 12 Hour Push Pack and the Vendor Managed Inventory (VMI). Push Packs contain 50 tons of medical materiel that will treat a variety of illnesses. The VMI will re-supply the Push Pack or supplies will be sent immediately to the emergency site if the biological agent is known.

### **School Safety Information Act: 102 P.A. 1999:**

In response to the rash of school shootings that occurred in the late 1990s, the Michigan Legislature passed Act 102 in July 1999 – The Michigan School Safety Information Act – which requires local school districts to meet with law enforcement officials to develop emergency plans to handle violent situations. School superintendents are then required to educate local communities about the plans. The plans spell out, among other things, how to evacuate schools, bring first aid and emergency resources to the scene, and handle parents that want to pick up their children. The law also requires the development and implementation of a statewide school safety information policy, the reporting and compiling of certain school safety information, and the expulsion of pupils for certain assaults.

### **Michigan Office of Safe Schools (reorganized into MSP as Office of School Safety):**

In 1998 the Michigan Legislature established the Michigan Office of Safe Schools within the Michigan Department of Education. The Office of Safe Schools began operating in October of 1999. Its mission is to collect and distribute information about school safety. The Office of Safe Schools maintains a web site that serves as a one-stop clearinghouse for information on school safety, school bus safety, food safety and current and proposed school safety legislation.

In March 2001, the Michigan Office of Safe Schools established a toll-free School Violence Hotline (**now OK2SAY**) to provide a means for students to anonymously report specific threats of imminent school violence or other suspicious or criminal conduct. The toll-free hotline is operational 24-hours per day, 365 days a year, at ~~1-800-815-TIPS~~. (Note: now accessible via phone, text, email, or mobile app- go to: <https://www.michigan.gov/ok2say> for more information.)

### **Michigan State Agencies:**

Sabotage / terrorism are being addressed on a variety of other fronts within Michigan State Government. The Michigan Department of State Police oversees and coordinates state agency actions related to homeland security and terrorism response – including the investigation of suspected or potential criminal enterprises and activities that might involve sabotage or terrorism. In addition, the State Police (in conjunction with other state agencies as well as federal and local counterparts) continuously prepares for terrorist incidents through emergency planning, training, information sharing and exercising efforts.

### **General Hazards:**

#### **Nuclear Attack**

Kalamazoo is not in an area known to be a specific nuclear attack target. However, mitigation of a Nuclear Attack on the local level is limited to preparation for personal, community, and infrastructure preparations. Ongoing participation by the community in general preparative activities, such as those of the KCDPC, Red Cross, Fire Drills, Scouting, 4-H, Private Industry, Homeland Security, Advisory Bulletins from the MSU Extension Office, and personal storm protection by citizenry contribute to a general personal readiness that would be extremely useful should threat of a nuclear attack occur.

#### **Earthquakes**

In January 1990, *Executive Order (EO) 12699, Seismic Safety of Federal and Federally Assisted or Regulated New Building Construction*, was signed into law. This EO requires that appropriate seismic design and construction standards and practices be adopted for any new construction or replacement of a federal building or federally building during or after an earthquake.

#### **Weather Hazards (General)**

National Weather Service Doppler Radar:

The National Weather Service (NWS) has completed a major modernization program designed to improve the quality and reliability of weather forecasting. The keystone of this improvement is Doppler Weather Surveillance Radar, which can more easily detect severe weather events that threaten life and property. The lead-time and specificity of warnings for severe weather have improved significantly. Doppler technology calculates both the speed and the direction of motion of severe storms. By providing data on the wind patterns within developing storms, the new system allows forecasters to better identify the conditions leading to severe weather such as tornadoes, severe straight-line winds, lightning and damaging hail. This means early detection of the precursors to severe storms, as well as information on the direction and speed of storms once they form.

National Weather Service Watches/Warnings:

The National Weather Service issues severe thunderstorm watches for areas when the meteorological conditions are conducive to the development of severe thunderstorms. People in the watch area are instructed to stay tuned to National Oceanic and Atmospheric Administration (NOAA) weather radio and local radio or television stations for weather updates and watch for developing storms. Once radar or a trained Skywarn spotter detects the existence of a severe thunderstorm, the National Weather Service will issue a severe thunderstorm warning. The warning will identify where the storm is located, the direction in which it is moving and the time frame during which the storm is expected to be in the area. Persons in the warning area are instructed to seek shelter immediately. The State and local government agencies are warned via the Law Enforcement Information Network (LEIN), NOAA weather radio and the Emergency Managers Weather Information Network (EMWIN). Public warning is provided through the Emergency Alert System (EAS). The National Weather Service stations in Michigan transmit information directly to radio and television stations, which in turn pass the warning on to the public. The National Weather Service also provides detailed warning information on the Internet through the Interactive Weather Information Network (IWIN).

### **National Weather Service Education:**

The National Weather Service issues severe thunderstorm watches and warnings when there is a threat of severe thunderstorms. However, lightning, by itself, is not sufficient criteria for the issuance of a watch or warning (every storm would require a watch or warning). The National Weather Service has an extensive public information program aimed at educating citizens about the dangers of lightning and ways to prevent lightning-related deaths and injuries.

### **Severe Weather Awareness Week:**

Each spring, the Emergency Management Division, Michigan Department of State Police, in conjunction with the Michigan Committee for Severe Weather Awareness, sponsors Severe Weather Awareness Week. This annual public information and education campaign focuses on such severe weather events as tornadoes, thunderstorms, hail, high winds, flooding and lightning. Informational materials on lightning hazards are disseminated to schools, hospitals, nursing homes, other interested community groups, facilities, and the public.

### **Tornado National Weather Service Watches/Warnings:**

The National Weather Service issues tornado watches for areas when the meteorological conditions are conducive to the development of a tornado. People in the watch area are instructed to stay tuned to NOAA weather radio and local radio or television stations for weather updates and watch for developing storms. Once a tornado has been sighted and its existence is confirmed and reported, or Doppler Radar shows strong probability of the development or occurrence of a tornado, the National Weather Service will issue a tornado warning. The warning will identify where the tornado was sighted, the direction in which it is moving and the time frame during which the tornado is expected to be in the area. Persons in the warning area are instructed to seek shelter immediately.

The State and local government agencies are warned via the Law Enforcement Information Network (LEIN), National Oceanic and Atmospheric Administration (NOAA) weather radio and the Emergency Managers Weather Information Network (EMWIN). Public warning is provided through the Emergency Alert System (EAS). The National Weather Service stations in Michigan transmit information directly to radio and television stations, which in turn pass the warning on to the public. The National Weather Service also provides detailed warning information on the Internet, through the Interactive Weather Information Network (IWIN).

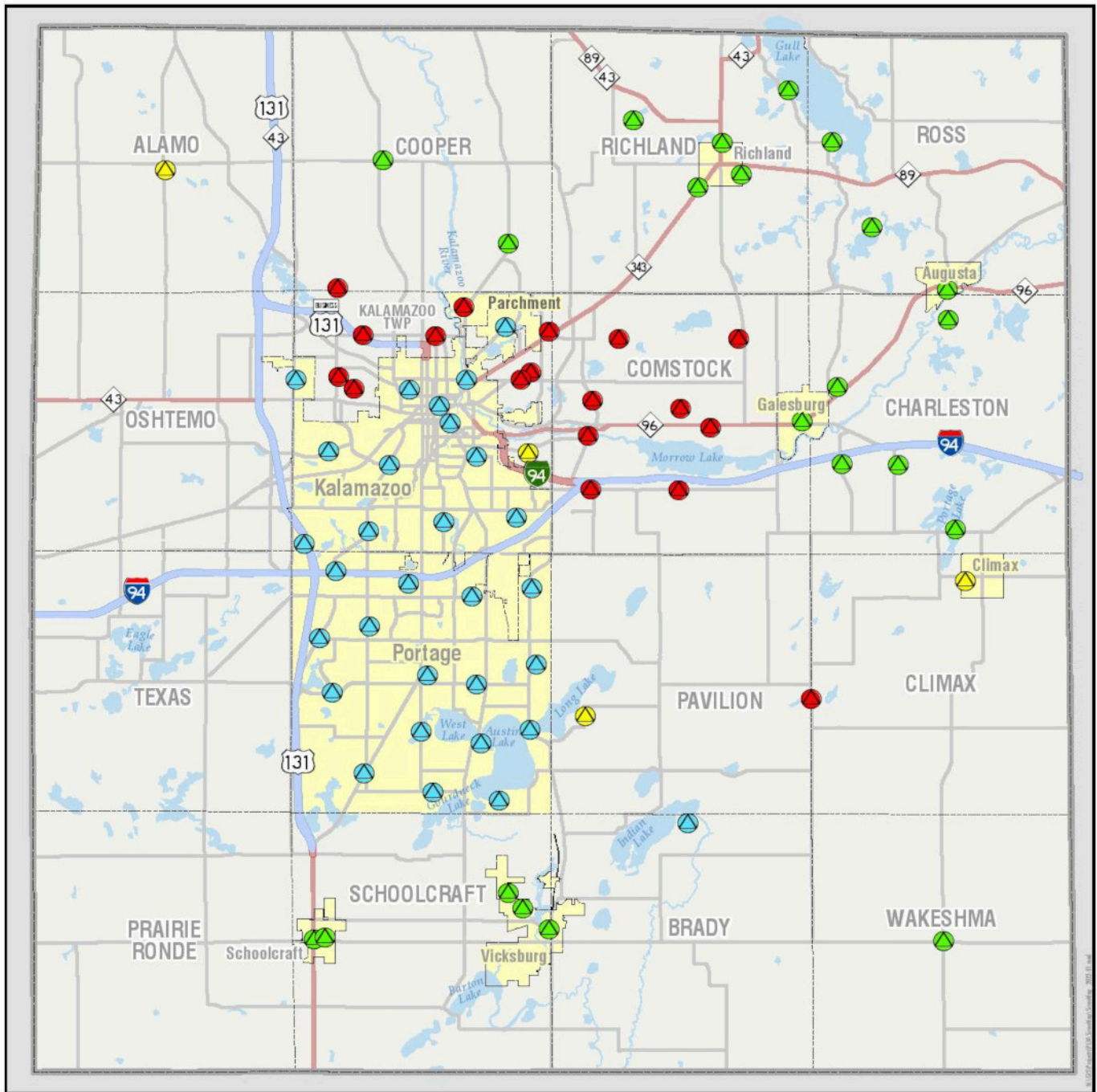
### **Tornado Warning Systems:**

Outdoor warning siren systems warn the public about impending tornadoes and other hazards. Most of these systems were originally purchased to warn residents of a nuclear attack, but that purpose was expanded to include severe weather hazards as well. These systems can be very effective at saving lives in densely populated areas where the siren warning tone is most audible. In more sparsely populated areas where warning sirens are not as effective, communities are turning to NOAA weather alert warning systems to supplement or supplant outdoor warning siren systems. Unfortunately, several of the communities within Kalamazoo County do not have adequate public warning systems in place to warn their residents of severe weather or other hazards. *Note: for these and other items listed here, see also; Chapter 3 Combined Core Capabilities.*

The graphic below shows the current (2022) status of the outdoor warning sirens in Kalamazoo County, followed by a table of the individual siren locations and description of status. *(Note: KCCDA refers to the Kalamazoo County Consolidated Dispatch Authority.)* Numerous sirens have been removed and/or deactivated in recent years, most often due to high maintenance costs. This has left several townships with little or no outdoor warning siren coverage, primarily in the western and southern rural areas of the county.



# Kalamazoo County Siren Locations



## Legend

- KCCDA-Activated Sirens
- Locally-Activated Sirens
- In-Place/Inoperable Sirens
- Removed Sirens

0 1.25 2.5 5 7.5 10 Miles



This map is solely a representation of real-world conditions and is made available to the Recipient for informational purposes only. It is not a legal document or a recorded survey. KALAMAZOO COUNTY MAKES NO EXPRESS OR IMPLIED WARRANTIES WITH RESPECT TO THE CHARACTER, FUNCTION, OR CAPABILITY OF THE MAP OR THE DATA USED TO CREATE THE MAP FOR ANY PARTICULAR PURPOSE. The County is not liable for any direct or indirect damages suffered related to the use of this map including, but not limited to, physical injury, death, property damage, economic loss, or other consequential damages suffered by the Recipient, or others, arising from any inadequacies of the map or the Recipient's use of the map. In no event will the County's liability to the Recipient or anyone else be limited by the terms of this map product.

©2022 Kalamazoo County Government. Last Revised 1/5/2022



**Kalamazoo County Warning Sirens 2021**

| <b>Jurisdiction</b> | <b>Qty</b> | <b>Location</b>                                   | <b>Status</b>                |
|---------------------|------------|---------------------------------------------------|------------------------------|
| Alamo               | 2          | Fire Station, 7840 N. 6th Street                  | In place but inoperable      |
| Climax              |            | ON Ave. west of railroad tracks at wellfield      | In place but inoperable      |
| Comstock            | 0          | 5819 Comstock Ave. in the park                    | Removed                      |
|                     |            | East Fire Station, 8700 E. Michigan Ave.          | Removed                      |
|                     |            | East ML Ave. at E. Glen Eagle Dr.                 | Removed                      |
|                     |            | 5937 East ML Ave. just west of 26th St.           | Removed                      |
|                     |            | East H Ave. at Hunters Run                        | Removed                      |
|                     |            | 9300 E. H Ave.                                    | Removed                      |
|                     |            | N. 26th St. at Dawes                              | Removed                      |
|                     |            | 713 N. 30th St.                                   | Removed                      |
| Cooper              | 2          | Fire Sta. #2, McKinley St. and Riverview St.      | Active/Locally Activated     |
|                     |            | Fire Sta. #1, D Ave. & Douglas St.                | Active/Locally Activated     |
| Galesburg           | 6          | Norms Place St. at railroad                       | Active/Locally Activated     |
|                     |            | Galesburg High School (off N 37th St.)            | Active/Locally Activated     |
|                     |            | Charleston Twp Hall, S. 38th St. @ L Ave.         | Active/Locally Activated     |
|                     |            | Eaton Corp., S. 40th St. @ L Ave.                 | Active/Locally Activated     |
|                     |            | MN Ave, Cold Brook Park by Restrooms/boat Lunch   | Active/Locally Activated     |
|                     |            | Fort Custer Rec Area (Behind Ranger Sta)          | Active/Locally Activated     |
| KDPS                | 13         | 3700 S. Burdick Street @ Deloofs Alley            | Active/Activated by Dispatch |
|                     |            | 828 Woodward St. near KalRiver trail              | Active/Activated by Dispatch |
|                     |            | 1123 Riverview Dr @ Paterson                      | Active/Activated by Dispatch |
|                     |            | 3400 W. Michigan @ Eldridge                       | Active/Activated by Dispatch |
|                     |            | 1202 Stockbridge St @ James                       | Active/Activated by Dispatch |
|                     |            | 3015 Random St @ Mt. Olivet                       | Active/Activated by Dispatch |
|                     |            | 3900 Oakland Dr @ Edgewood Dr (Lakeside Academy)  | Active/Activated by Dispatch |
|                     |            | 1414 Howard St @ KDPS Sta #6 / Oakland Dr         | Active/Activated by Dispatch |
|                     |            | 3500 Emerald, behind Consumers Energy             | Active/Activated by Dispatch |
|                     |            | Arcadia Festival Site                             | Active/Activated by Dispatch |
|                     |            | 333 Portage St. @ Zoetis                          | Active/Activated by Dispatch |
|                     |            | 4606 Croyden Ave. @ Drake / KRESA                 | Active/Activated by Dispatch |
|                     |            | 4401 Siesta Street @ Moonlite (back near freeway) | Active/Activated by Dispatch |
| K-Twp               | 0          | 2829 Maple Ave. north of Gull Rd.                 | Removed                      |
|                     |            | 5100 N 14 <sup>th</sup> St. north of G Ave.       | Removed                      |
|                     |            | 1417 Baker Dr.                                    | Removed                      |
|                     |            | 2525 Althea St.                                   | Removed                      |
|                     |            | Barney Rd. at Old Farm Rd.                        | Removed                      |
|                     |            | Fire Sta #1, 2617 N. Burdick                      | Removed                      |
|                     |            | Fire Sta #2, 2703 East Main                       | Removed                      |
|                     |            | Fire Sta #3, 3100 Lake St.                        | In place but inoperable      |
|                     |            | Fire Sta #4, 1310 Nichols Rd.                     | Removed                      |
| Parchment           | 0          | Robert St @ Wilson St.                            | Removed                      |
| Pavilion            | 0          | Fire Sta #1, 8356 S. 36th Street                  | Removed                      |
|                     |            | Fire Sta #2, 8749 S. 25th Street                  | In place but inoperable      |
| Portage             | 16         | Angling Elementary School                         | Active/Activated by Dispatch |
|                     |            | Idaho and Outer Drive                             | Active/Activated by Dispatch |
|                     |            | E. Milham Ave. east of KRESA                      | Active/Activated by Dispatch |
|                     |            | Sprinkle Rd. south of Winthrop                    | Active/Activated by Dispatch |
|                     |            | Romence and Angling                               | Active/Activated by Dispatch |
|                     |            | Haverhill between Oakland and Bluegrass           | Active/Activated by Dispatch |
|                     |            | 3412 West Centre west of Cooley                   | Active/Activated by Dispatch |
|                     |            | Behind Portage Public Library (near Currier Dr.)  | Active/Activated by Dispatch |
|                     |            | East Centre and Oakside                           | Active/Activated by Dispatch |
|                     |            | Tiffany and Autumn                                | Active/Activated by Dispatch |

**Kalamazoo County Warning Sirens 2021**

| <b>Jurisdiction</b> | <b>Qty</b> | <b>Location</b>                                           | <b>Status</b>                |
|---------------------|------------|-----------------------------------------------------------|------------------------------|
|                     |            | South Westnedge Park                                      | Active/Activated by Dispatch |
|                     |            | Lakeview Park, Portage Rd.                                | Active/Activated by Dispatch |
|                     |            | Sprinkle Rd. at Wells St.                                 | Active/Activated by Dispatch |
|                     |            | Shaver and Beethoven                                      | Active/Activated by Dispatch |
|                     |            | East Osterhout and Marylynn Court                         | Active/Activated by Dispatch |
|                     |            | 2926 Woodhams                                             | Active/Activated by Dispatch |
| Richland            | 5          | 8973 28th St @ C Ave. (near barn at that location)        | Active/Locally Activated     |
|                     |            | 533 Gull Road, On Andy Campbell barn near DE Ave.         | Active/Locally Activated     |
|                     |            | CD Ave @ N. 32nd St (at Post Office)                      | Active/Locally Activated     |
|                     |            | 9700 blk Gull Lake Dr                                     | Active/Locally Activated     |
|                     |            | Yorktown at dead end. Behind Gull Lake Middle School      | Active/Locally Activated     |
| Ross-Augusta        | 3          | Sherman Lake Dr. just south of N 38th St.                 | Active/Locally Activated     |
|                     |            | Gull Lake Drive at E. CD Ave.                             | Active/Locally Activated     |
|                     |            | Augusta Fire Station                                      | Active/Locally Activated     |
| South County        | 6          | Fire Sta #1, 100 N. Grant Street, Schoolcraft             | Active/Locally Activated     |
|                     |            | Public Works Bldg, E. Cass St., Schoolcraft               | Active/Locally Activated     |
|                     |            | 22nd Ave at V Ave., Vicksburg                             | Active/Locally Activated     |
| South County        |            | 13318 North Blvd., Vicksburg (behind S. County EMS bldg.) | Active/Locally Activated     |
|                     |            | Kalamazoo Ave at Washington St., Vicksburg                | Active/Locally Activated     |
|                     |            | Fire Sta #3, 42nd St. & East W. Ave., Fulton              | Active/Locally Activated     |
|                     |            | Indian Lake, 11294 Festival Dr., Vicksburg                | Active/Activated by Dispatch |
| Oshtemo             | 0          |                                                           |                              |
| Texas               | 0          |                                                           |                              |
| Total Active: 53    |            |                                                           |                              |

## Structural Fires:

### Michigan Office of Fire Safety:

The Michigan Department of Licensing and Regulatory Affairs' Office of Fire Safety is responsible for conducting fire safety and prevention inspections in state-regulated facilities and certain other facilities. Specific services provided include: 1) fire safety inspections of adult foster care, correctional and health care facilities, and hotels/motels; 2) plan review and construction inspections of the regulated facilities in item (1), as well as schools, colleges, universities, and school dormitories; 3) coordination of fire inspector training programs; and 4) coordination of fire alarm and fire suppression system installation in regulated facilities. These activities are important mitigation activities designed to save lives and protect property from structural fire hazards. The State Fire Safety Board, also housed within the Michigan Department of Licensing and Regulatory Affairs, Bureau of Construction Codes and Fire Safety, promulgates rules covering the construction, operation and maintenance of schools, dormitories, health care facilities, and correctional facilities. These rules are designed to protect life and property at these facilities from fire, smoke, hazardous materials and fire-related panic.

### Fire Safety Rules for Michigan Dormitories:

Even before the Seton Hall University dormitory fire in January, 2000, the State Fire Safety Board took action to enhance the fire and life safety protection of Michigan's college and university dormitories. On December 21, 1999 two new sets of rules took effect governing the construction, operation, and maintenance of school, college and university instructional facilities and dormitories. These sets of rules were updated to meet the most current nationally recognized standards from the National Fire Protection Association. The new rules adopted the 1997 edition of NFPA 101, Life Safety Code. NFPA standards provide the minimum requirements necessary to establish a reasonable level of fire and life safety and property protection from hazards created by fire and explosion.

The new rules require, among other things, that fire sprinklers be installed in newly constructed dormitories or those undergoing major renovations. However, existing dormitories don't fall under the new rules and therefore do not have to be retrofitted unless they are being renovated.

## Wildfires:

Because the vast majority of wildfires are caused by human activity, the Michigan Department of Natural Resources established, in 1981, the Michigan Interagency Wildfire Prevention Group. It was the first such group in the nation (promoting wildfire prevention and awareness) that had the full involvement of the state's fire agencies. In 1993, the Michigan Interagency Wildfire Prevention Group was expanded to form the Michigan Interagency Wildland Fire Protection Association (MIWFPA). The MIWFPA promotes interagency cooperation in fire prevention, training, fire technology, and firefighting operations. Members of the MIWFPA include the: 1) MDNR Forest Management Division; 2) USDA Forest Service - Huron-Manistee, Hiawatha, and Ottawa National Forests; 3) USDI National Park Service - Pictured Rocks and Sleeping Bear Dunes National Lakeshores; 4) USDI Fish and Wildlife Service - Seney National Wildlife Refuge; 5) USDI Bureau of Indian Affairs; 6) Michigan Department of State Police – fire investigation; 7) Michigan State Firemen's Association; and the 8) Michigan Fire Chief's Association. While the risk of wildfires is low, Kalamazoo can reduce its vulnerability to wildfires by: 1) participating in multi-state and interagency mitigation efforts.

## Scrap Tire Fires:

The Scrap Tire Regulatory Program is implemented by the Waste Management Division of the Michigan Department of Environmental Quality **now reorganized as Environment, Great Lakes & Energy (EGLE)**, under the authority of Part 169 of the Natural Resources and Environmental Protection Act (451 P.A. 1994), as amended. Policies and regulations established under this law provide the basis for the MDEQ to implement and administer an effective scrap tire management program per the following initiatives: 1) a compliance and enforcement program was implemented; 2) a scrap tire policy recycling hierarchy was established; 3) special uses of scrap tires were approved; and 4) a grant program was established to address abandoned tires.



## **Riverine and Urban Flooding:**

### **National Flood Insurance Program (NFIP)**

For many years, the response to reducing flood damages followed a structural approach of building dams, levees and making channel modifications. However, this approach did not slow the rising cost of flood damage, plus individuals could not purchase insurance to protect themselves from flood damage. It became apparent that a different approach was needed. The National Flood Insurance Program (NFIP) was instituted in 1968 to make flood insurance available in those communities agreeing to regulate future floodplain development. As a participant in the NFIP, a community must adopt regulations that: 1) require any new residential construction within the 100-year floodplain to have the lowest floor, including the basement, elevated above the 100-year flood elevation; 2) allow non-residential structures to be elevated or dry flood proofed (the flood proofing must be certified by a registered professional engineer or architect); and 3) require anchoring of manufactured homes in flood prone areas. The community must also maintain a record of all lowest floor elevations or the elevations to which buildings in flood hazard areas have been flood proofed. In return for adopting floodplain management regulations, the federal government makes flood insurance available to the citizens of the community. In 1973, the NFIP was amended to mandate the purchase of flood insurance as a condition of any federally regulated, supervised or insured loan on any construction or building within the 100-year floodplain.

The following communities within Kalamazoo County are recognized by FEMA as participants in the National Flood Insurance Program: the cities of Kalamazoo and Portage, the townships of Charleston, Comstock, Cooper, Kalamazoo, Oshtemo, Richland, Ross, Schoolcraft, and Texas, and the villages of Augusta and Vicksburg. These communities have all had their floodplain areas officially mapped and are in compliance with the NFIP. There are five communities in the county, however, that are listed by FEMA as non-participants in the NFIP, even though they have already been mapped as having special flood hazard areas. The five communities are Brady Township, Climax Township, the City of Galesburg, the City of Parchment, and Prairie Ronde Township.

### **Michigan Flood Hazard Regulatory Authorities/Laws/Public Acts:**

#### ***Land Division Act, 591 P.A. 1996, as amended by 87 P.A. 1997:***

The Land Division Act governs the subdivision of land in Michigan. The Act requires review at the local, County and state levels to ensure the land being subdivided is suitable for development. From a flood hazards viewpoint, a proposed subdivision is reviewed by the County Drain Commissioner for proper drainage, and for floodplain impacts by the Department of Environmental Quality, Land and Water Management Division.

Provisions of the Act and its Administrative Rules require that the floodplain limits be defined and prescribe minimum standards for developments for residential purposes and occupancy, within or affected by the floodplain. Restrictive deed covenants are filed with the final plat which stipulates that any building used, or capable of being used, for residential purposes and occupancy within or affected by the floodplain shall meet the following conditions:

Be located on a lot having a buildable site of 3,000 square feet of area at its natural grade above the floodplain limit. (Lots with less than 3,000 square feet of buildable area may be filled to achieve that area.) Be served by streets within the proposed subdivision having surfaces not lower than one foot below the elevation defining the floodplain limits. Have lower floors, excluding basements, not lower than the elevation defining the floodplain limits. Have openings into the basement not lower than the elevation defining the floodplain limits.

Have basement walls and floors below the elevation defining the floodplain limits, watertight and designed to withstand hydrostatic pressures. Be equipped with a positive means of preventing sewer backup from sewer lines and drains serving the building. Be properly anchored to prevent flotation. Floodplain Regulatory Authority, found in Water Resources, Part 31 of the ***Natural Resources and Environmental Act, 451 P.A. 1994***, as amended.

The floodplain regulatory portion of Act 451 restricts residential occupation of high-risk flood hazard areas and ensures that other occupations do not obstruct flood flows. A permit is required from the Department of Environmental Quality for any occupation or alteration of the 100-year floodplain. In general, construction and fill may be permitted in the portions of the

floodplain that are not floodway, provided local ordinances and building standards are met. (Floodways are the channel of a river or stream and those portions of the floodplain adjoining the channel which are reasonably required to carry and discharge the 100-year flood. These are areas of moving water during floods.) New residential construction is specifically prohibited in the floodway. Non-residential construction may be permitted in the floodway, although a hydraulic analysis may be required to demonstrate that the proposed construction will not harmfully affect the stage-discharge characteristics of the watercourse. The Act does not apply to watersheds that have a drainage area of less than two square miles. Those small watersheds are considered to be local drainage systems, and do not fall under the Floodplain Regulatory Authority.

***Soil Erosion and Sedimentation Control, Part 91*** of the Natural Resources and Environmental Protection Act, 451 P.A. 1994, as amended:

This portion of the Act seeks to control soil erosion and protect the waters of the state from sedimentation. A permit is required for all earth changes that disturb one or more acres of land, as well as those earth changes that are within 500 feet of a lake or stream. The Act itself does not address flood hazards, per se. However, if sedimentation is not controlled, it can clog streams, block culverts, and result in continual flooding and drain maintenance problems.

***Inland Lakes and Streams, Part 301*** of the Natural Resources and Environmental Protection Act, 451 P.A. 1994, as amended:

This portion of the Act regulates all construction, excavation and commercial marina operations on the State's inland waters. It ensures that proposed actions do not adversely affect inland lakes, streams, connecting waters and the uses of all such waters. Structures are prohibited that interfere with the navigation and/or natural flow of an inland lake or stream. Though reduction of flooding is not a specific goal of this Act, minimizing restrictions on a stream can help to reduce flooding conditions.

***Wetlands Protection, Part 303*** of the Natural Resources and Environmental Protection Act, 451 P.A. 1994, as amended:

This portion of the Act requires a permit from the Department of Environmental Quality for any dredging, filling, draining or alteration of a wetland. This permitting process helps preserve, manages, and protect wetlands and the public functions they provide – including flood and storm water runoff control. The hydrologic absorption and storage capacity of the wetland allows wetlands to serve as natural floodwater and sedimentation storage areas. The Act recognizes that the elimination of wetland areas can result in increased downstream flood discharges and an increase in flood damage. Permits for wetland alterations are generally not issued unless there is no feasible alternative and the applicant can demonstrate that the proposal would not have a detrimental impact upon the wetland functions.

***Natural Rivers Program, Part 305*** of the Natural Resources and Environmental Protection Act, 451 P.A. 1994, as amended:

The Natural Rivers Act was originally passed in 1970, and has been incorporated as Part 305 of the Natural Resources and Environmental Protection Act. The purpose of this program is to establish and maintain a system of outstanding rivers in Michigan, and to preserve, protect, and enhance their multi-faceted values. Through the natural rivers designation process, a Natural River District is established (typically 400 feet either side of the riverbank) and a zoning ordinance is adopted. Within the Natural River District, permits are required for building construction, land alteration, platting of lots, cutting of vegetation, and bridge construction. Not all of the zoning ordinances on the natural rivers have the same requirements, but they all have building setback and vegetative strip requirements. Although the purpose is not specifically to reduce flood losses, by requiring building setbacks (in many cases prohibiting construction in the 100-year floodplain), flood hazard mitigation benefits can be realized.

***Dam Safety, Part 315*** of the Natural Resources and Environmental Protection Act, 451 P.A. 1994, as amended:

The Dam Safety Unit within the Land and Water Management Division, Department of Environmental Quality, has the primary responsibility to ensure dam safety within the state. Following the September, 1986 flood in central Lower Michigan, the current Dam Safety Act was passed to ensure that dams are built and maintained with necessary engineering and inspections for safety of the public and the environment. The Department of Environmental Quality is required to review applications involving construction, reconstruction, enlargement, alteration, abandonment and removal for dams that impound more than five acres of water and have a height of six feet or more.

***Manufactured Housing Commission Act, 96 P.A. 1987*, as amended:**

The Michigan Manufactured Housing Commission Act and its implementing Administrative Rules provide regulation on the placement of manufactured homes and establishes construction criteria. Manufactured homes are prohibited from being placed within a floodway, as determined by the Department of Environmental Quality. In addition, manufactured homes sited within a floodplain must install an approved anchoring system to prevent the home from being moved from the site by floodwaters (or high winds), and be elevated above the 100 year flood elevation.

***Local River Management Act, 253 P.A. 1964:***

Enacted in 1964, the Local River Management Act provides for the coordination of planning between local units of government in order to carry out a coordinated water management program. Implementation of the water management program occurs via the establishment of watershed councils. These councils conduct studies on watershed problems, water quality and the types of land uses occurring within the watershed. Watershed councils have the authority to develop River Management Districts for the purpose of acquisition, construction, operation and the financing of water storage and other river control facilities necessary for river management. The provision to allow acquisition of land adjacent to the river for the purpose of management aids in regulating development of land prone to flooding.

**Floodplain Service Program:**

The need to identify a flood hazard area before construction is essential to the goal of flood hazard mitigation. The Department of Environmental Quality regularly provides floodplain information to public and private interests as part of its Floodplain Service Program under the Land and Water Management Division. The goal of the program is to provide 100-year floodplain information to interested parties so that informed purchase or development decisions can be made. In addition to providing floodplain information, the MDEQ will provide information on land and water “interface” permit requirements and on building requirements relating to construction in flood hazard areas. ***See also: National Flood Insurance Program (NFIP).***

**Dam Failures:**

Both the MDEQ and the Federal Energy Regulatory Commission (FERC) classify and regulate dams in Michigan. Under state and federal legislation, certain dam owners are required to develop a survey of the downriver area, develop flood-prone area maps and develop emergency action plans (EAPs). Furthermore, the FERC requires the owners of such dams to exercise these plans; the MDEQ has initiated an effort to encourage owners of state-regulated dams to voluntarily perform exercises of their EAPs. In Michigan, well over 100 dams are covered by Emergency Action Plans. Dams in Michigan are regulated by Part 315 of The Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Part 315, Dam Safety provides for the inspection of dams. This statute requires the MDEQ to rate each dam as either "high," "significant," or "low" hazard potential, according to the potential downstream impact if the dam were to fail (not according to the physical condition of the dam). The MDEQ has identified and rated over 2,400 dams. Dams over 6 feet in height that create an impoundment with a surface area of 5 acres or more are regulated by this statute. Dam owners are required to maintain an EAP for "high" and "significant" hazard potential dams. Owners are also required to coordinate with local emergency management officials to assure consistency with local emergency operations plans. Dams regulated by FERC, such as hydroelectric power dams, are generally exempt from this statute. The FERC licenses water power projects (including dams) that are developed by non-federal entities, including individuals, private firms, states and municipalities. Under provisions of the Federal Power Act and federal regulations, the licensee of the project must prepare an EAP. This plan must include a description of actions to be taken by the licensee in case of an emergency. Inundation maps showing approximate expected inundation areas must also be prepared. Licensees must conduct a functional exercise at certain projects, in cooperation with local emergency management officials.

**Shoreline Flooding and Erosion:**

Not Applicable to Kalamazoo - No Great Lakes Boundaries.

**Drought:**

U.S. Geological Survey:

The U.S. Geological Survey (USGS) is the primary federal agency that collects and analyzes stream flow data, another good index of the relative severity of drought. The agency provides a handy “Drought Watch” web site at <http://waterwatch.usgs.gov/>. The site presents a map that is continually updated through an automated analysis of USGS stream gaging stations. Additional drought-related links can be accessed from the Michigan-specific web page (<http://waterwatch.usgs.gov/new/index.php?m=dryw&r=mi>) by clicking on the map (or proceeding directly to the specific web page at <http://mi.water.usgs.gov/midroughtwatch.php>).

### **Fixed Site Hazardous Material Incidents (including explosions and industrial accidents):**

Resource Conservation and Recovery Act - 42 U.S.C. s/s 6901 et seq. (1976)

RCRA (pronounced "rick-rah") gave EPA the authority to control hazardous waste from the "cradle-to-grave". This includes the generation, transportation, treatment, storage and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous wastes. The 1986 amendments to RCRA enabled EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances. RCRA focuses only on active and future. The Federal Hazardous and Solid Waste Amendments are the 1984 amendments to RCRA that required phasing out land disposal of hazardous waste. Some of the other mandates of this strict law include increased enforcement authority for EPA, more stringent hazardous waste management standards and a comprehensive underground storage tank program.

Within Kalamazoo County, efforts are ongoing to enhance general awareness and specialized training for HAZMAT emergencies. The city of Kalamazoo has established a HAZMAT jump team; the Pfizer Corporation has its own HAZMAT team; the KCDC has obtained personal protection kits for every first responder (police/fire/ambulance) in the County -- with training and team building an ongoing activity; and the NWS has implemented a wind forecast process for the purpose of assisting in dispersion analysis

The Fire Act 207, commonly known as the "Polluter-Pay Law" lays financial cleanup responsibility on the entity that caused the spill/hazard. Railroads and trucking companies provide their own emergency response and cleanup teams -- and the MDOT and KCRC are able to assist where necessary.

### **Hazardous Material Transportation Incidents:**

Superfund Amendments and Reauthorization Act (SARA), Title III:

As explained earlier, the Bhopal, India tragedy initiated a chain of events aimed at enhancing preparedness activities to minimize the potential for a similar event to occur in the United States. On October 17, 1986 the Superfund Amendments and Reauthorization Act (SARA) was signed into law. A major SARA provision is Title III (the Emergency Planning and Community Right-To-Know Act, also known as SARA Title III), which establishes hazardous material emergency planning, reporting, and training requirements for federal, state and local governments, and private industry. In Michigan, the SARA Title III program is jointly administered and implemented by two state departments—the Michigan State Police and the Michigan Department of Environmental Quality.

### **Local Emergency Planning Committees:**

One of the major provisions of SARA Title III is the establishment of Local Emergency Planning Committees (LEPCs) for designated planning districts. The LEPCs are responsible for developing emergency response plans for communities that have facilities in their jurisdiction subject to SARA Title III emergency planning requirements. The LEPC is the primary mechanism through which local SARA Title III planning, training and exercising activities are implemented. Michigan has 88 designated LEPCs – one for each of the 83 counties and 5 in major cities. Nearly 2,800 facilities across the state have been identified as being subject to Title III emergency planning provisions. A facility is subject to SARA Title III provisions if extremely hazardous substances (as determined by the U.S. Environmental Protection Agency) are present at the facility in quantities at or above the minimum threshold quantities established in Section 302 of the Act. The map at the end of this section provides a breakdown of Title III (Section 302) sites by county.

Note: Many of the programs and initiatives designed to mitigate, prepare for, respond to, and recover from fixed-site hazardous material incidents have the dual purpose of also protecting against hazardous material transportation incidents.

### **Federal Hazardous Material Transportation Regulations:**

The transportation, manufacturing, storage and disposal processes for hazardous materials are highly regulated by federal and state agencies in order to reduce risk to the public. At the federal level, the U.S. Department of Transportation, Office of Hazardous Materials Safety (USDOT/OHMS), is the regulating agency for all modes of hazardous material transportation. In addition to enforcing federal hazardous material transportation regulations, the USDOT/OHMS is also involved in a number of other areas aimed at improving the safety of hazardous material shipping. Those areas include: 1) research and development of improved containment/packaging and other technological aspects of hazardous material shipping; 2) interagency coordination efforts in hazardous material transportation planning and standards setting; 3) management of data information systems pertaining to hazardous material transportation; and 4) development of hazardous material safety training policies and programs.

In Michigan, the Motor Carrier Division, Department of State Police, oversees, coordinates and implements the commercial truck safety aspects of the USDOT regulations. The Michigan Department of Transportation oversees programs aimed at enhancing railroad safety and improving the rail infrastructure (which helps reduce the likelihood of a hazardous material rail transportation accident).

### ***Hazardous Materials Transportation Uniform Safety Act:***

The federal Hazardous Materials Transportation Uniform Safety Act (HMTUSA), enacted in 1990, provides funding for the training of emergency responders and the development of emergency response plans for both fixed site facilities and transportation-related incidents. (This funding mechanism under the HMTUSA is referred to as Hazardous Material Emergency Preparedness [HMEP] grants.) In Michigan, the HMTUSA/HMEP program is coordinated and implemented by the Emergency Management Division, Department of State Police. Since the program's inception, over \$326,000 in grants have been allocated to 80 Michigan communities for hazardous material planning and training activities.

### **Federal/State Hazardous Material Response Resources:**

There are numerous groups at the federal, state and local levels and in private industry that are trained to deal with hazardous material fixed-site and transportation incidents. These groups include the National Response Team (NRT), Regional Response Teams (RRTs), and state and local hazardous material response teams. The Chemical Manufacturers Association established the Chemical Transportation Emergency Center (CHEMTREC) to provide 24-hour technical advice to emergency responders. The National Response Center (NRC), which operates much like CHEMTREC, was established to provide technical advice and coordinate federal response to a hazardous material incident.

In Michigan, a 24-hour statewide notification system called the Pollution Emergency Alerting System (PEAS) was established for reporting chemical spills to the Department of Environmental Quality. As a companion to the PEAS, the Michigan Department of Agriculture (MDA) has established a 24-hour Agriculture Pollution Emergency Hotline for use by agrichemical users to report fertilizer and pesticide spills. Callers to the MDA hotline gain immediate access to appropriate technical assistance, regulatory guidance for remediation, and common sense approaches for addressing the problem.

### **Oil and Natural Gas Well Accidents:**

#### **Local Emergency Capability:**

Communities that may be affected by oil or natural gas well accidents should have adequate procedures in their Emergency Operations Plans to address the unique types of problems associated with this hazard, including rescue and evacuation. Affected communities must work closely with company officials and surrounding jurisdictions to ensure compatibility of procedures for a fast, coordinated response. Mitigation possibilities include the use of community zoning

regulations to provide suitable open, unoccupied "buffer" areas around refineries and compressor stations. Michigan Department of Environmental Quality regulations provide for buffer zones around wells and treatment and storage facilities.

### Pipeline Accidents (Petroleum and Natural Gas):

MPSC Pipeline Safety Inspections:

Safety engineers from the MPSC are certified by the USDOT/OPS to conduct inspections on natural gas pipelines to ensure structural and operational integrity of the systems. If violations are found, the pipeline company can be ordered to take corrective actions; in addition, the pipeline operator may be fined. The MPSC safety engineers also respond to accidents involving natural gas pipelines (to ensure compliance with federal and state law and to offer technical assistance to emergency responders).

### Protection of Underground Facilities Act / MISS DIG Program:

Michigan's first line of defense against pipeline and other utility line breaks from construction excavation is The "MISS DIG" Program established with the passage of Act 53 in 1974 – The Protection of Underground Facilities. MISS DIG System, Inc., is a 24-hour utility communications system that helps contractors comply with the state law (Act 53) which requires notification of utilities at least three working (but not more than 21 calendar) days before commencing excavation, tunneling, demolishing, drilling or boring procedures, or discharging explosives for a project. When properly administered and followed, the MISS DIG safety system does an excellent job of minimizing pipeline and utility line accidents.

### Programs and Initiatives:

Pipeline jurisdiction and oversight in Michigan is complex, determined primarily by the type and function of a pipeline and its location. Agencies involved include 1) the MPSC Gas Safety Office; 2) the USDOT/OPS in Kansas City, Missouri; and 3) the Michigan Department of Environmental Quality, Geological Survey Division (MDEQ/GSD). The table below is a breakdown of jurisdictional and inspection responsibilities for the various types of pipelines present in Michigan:

| Pipeline Safety Regulation in Michigan                                                                                                                                                     |                        |                                                            |                               |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|------------------------------------------------------------|-------------------------------|--|
| Pipeline Type                                                                                                                                                                              | Jurisdiction           | Applicable Code                                            | Inspected By                  |  |
| Inter-state Natural Gas                                                                                                                                                                    | USDOT/OPS              | 49 CFR Part 192                                            |                               |  |
| MPSC Gas                                                                                                                                                                                   |                        |                                                            |                               |  |
|                                                                                                                                                                                            |                        |                                                            | Safety Intra-state            |  |
| Inter-state Natural Gas                                                                                                                                                                    | State of Michigan/MPSC | Michigan Gas Safety Standards                              | MPSC Gas Safety               |  |
| Liquid Petroleum                                                                                                                                                                           | USDOT/OPS              | 49 CFR Parts 193/195                                       | USDOT/OPS                     |  |
| Gathering Lines*                                                                                                                                                                           | MDEQ/GSD               | Oil/Gas Administrative Rules under Part 615, 1994 P.A. 451 | Commission, Gas Safety Office |  |
| *Note: Gathering lines run from a production facility (i.e., well) to a pre-processing plant (i.e., dehydration facility, separator, compression station). Source: Michigan Public Service |                        |                                                            |                               |  |

### Local Emergency Capability:

Procedures in the Emergency Operations Plans address the unique types of problems associated with this hazard, including specific functions such as rescue and evacuation. Communities work closely with company officials and surrounding jurisdictions to ensure a fast, coordinated response. Mitigation possibilities include the use of community zoning regulations to provide suitable open, unoccupied "buffer" areas around pipelines, storage fields, refineries and compressor stations.

### Nuclear Power Plant Accidents:

Mitigation of nuclear power plant hazards on the local County level is primarily limited to the detection of radiation, alerting the public, and providing directions for evacuation and/or housing – the latter three issues are addressed in other sections of

this mitigation action item section of the mitigation plan.

### Infrastructure Failures:

Kalamazoo has the largest groundwater pumping area of any community east of the Mississippi -- with 13 pumping centers for freshwater - serving 150,000 customers. There are four types of water wells, identified as Type I (Municipal, serving 25 or more people 24 hours per day for 60 or more days), Type II (serve 25 or more people for 60 days -- example: Township Halls), Type III (duplex or small businesses with less than 25 employees, and Type IV (private individual water wells).

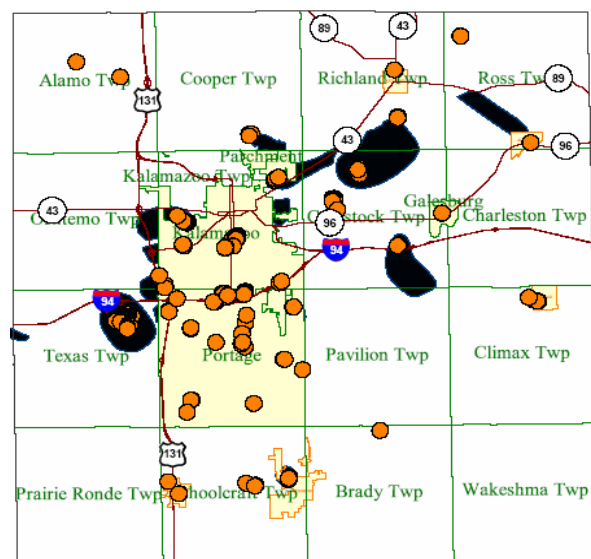
There are 399 wells of Types I (show as orange circles in the map at right) and II in the County -- and each must be tested regularly. Including the Kalamazoo well fields, there are 17 Type I water suppliers. Mobile home parks in the rural areas have their own type I water supply systems and wells. The DEQ, located on D. Avenue, regulates public water; and the **Kalamazoo County Human Services Department (now Health and Community Services Department- HCS)** -- Environmental Health & Laboratory Services conducts water well sampling and tracking on a regular basis -- and meets with the operators of municipal water systems on a three-month basis.

Of concern is the ability of water well suppliers Type I, II (shown as purple circles in the map below), and III to supply water in the event of a failure of their existing water system -- for example, hospitals and other key facilities should have a contingency plan for ensuring the continuation of water service in the event of loss of water or sewage.

Water systems serving populations between 50,000 and 100,000 persons are required to complete an Emergency Response Plan (ERP). The vulnerability assessment process requires systems to identify critical assets and single points of failure, and then analyzed threats.

**The Federal Clean Water Act** regulates the discharge from community wastewater collection and treatment systems. The regulatory aspects of the Act that pertain to municipalities have been delegated to the MDEQ Surface Water Quality Division for surface water discharge facilities, and the MDEQ Waste Management Division for groundwater discharge facilities. Authority for the oversight of planning, facility design review, and construction permitting of sewerage systems collection, transportation and treatment facilities, is derived from Part 41 of the Michigan Natural Resources and Environmental Protection Act (451 P.A. 1994) and Administrative Rules promulgated under authority of Part 41. The two MDEQ divisions assist communities with the development and maintenance of their wastewater collection treatment systems. In addition, they monitor and regulate systems to ensure pollution abatement and health conditions met. Although the regulatory authority vested in the MDEQ primarily aimed at preventing pollution of waters of the state, are requirements in place under 451 P.A. 1994 regarding the construction, and operational integrity and reliability of wastewater collection and treatment systems.

The major electrical power grid encircles the metropolitan Kalamazoo area. In preparation for Y2K, Kalamazoo arranged for power to service the water treatment and pumping plants from two directions (formerly served by one) -- expecting that in any emergency one of the two would provide electricity to these critical infrastructure elements.



All sewer systems within Kalamazoo County flow to one central processing plant in the city of Kalamazoo. Under the



requirements of the Public Hazard and Security and Bioterrorism Preparedness Act of 2002, a Process Safety Management Plan, and an Emergency Response Plan was reinforced and is updated and monitored under the direction of the Wastewater Superintendent.

### **Surface Drainage Systems:**

Michigan's first drain laws appeared on the books as Territorial laws – years before Michigan achieved statehood. After attaining statehood in 1837, the State passed its first drain law in 1839. Since that time, there have been 45 separate acts passed regarding drainage, up to the most recent re-codification of drain law in 1956. Since 1956, the present drain code has been amended over 200 times – an indication of how important and dynamic the issue of drainage continues to be in Michigan. The Michigan Drain Code provides for the maintenance and improvement of the vast system of intra-County (County) and inter-County drainage facilities. Each drain has a corresponding special assessment district (watershed), a defined route and course, an established length, and is conferred the status of a public corporation with powers of taxation, condemnation, ability to contract, hold, manage and dispose of property, and to sue and be sued. Drainage districts and drains are established by petition of the affected landowners and/or municipalities. County drains, with a special assessment district entirely within the County, are administered by the locally elected County Drain Commissioner. Inter-County drains, with a special assessment district in more than one County, are administered by a drainage board that consists of the drain commissioners of the affected counties, and is chaired by the Director of the Michigan Department of Agriculture (MDA) or an MDA Deputy Director.

### **Water Distribution Systems:**

Michigan's public water supplies are regulated under the Federal Safe Drinking Water Act. The Michigan Department of Environmental Quality (MDEQ), as a primary agency for the Federal government, provides supervision and control of Michigan's public water supplies (including their operation and physical improvements) under the Michigan Safe Drinking Water Act (399 P.A. 1976).

The MDEQ Drinking Water and Radiological Protection Division regulates, through a permit process, the design, construction and alteration of public water supply systems. Water supply construction must be conducted within the framework of the Michigan Safe Drinking Water Act, as well as the Architecture, Professional Engineering and Land Surveying Act (240 P.A. 1937, which requires professional engineering preparation of construction documents for water works construction costing over \$15,000). Most communities in Michigan, including Kalamazoo have, in conjunction with the MDEQ, developed water system master plans that conform to the requirements of the Michigan Safe Drinking Water Act. From a hazard mitigation standpoint, that is important because it helps ensure that all new water system construction and alterations to existing systems will conform to the minimum standards set in the Act. While not making water infrastructure “disaster-proof”, the standards provide at least a basic level of design, structural and operational integrity to new or renovated portions of a community's water supply system.

Kalamazoo has the largest groundwater pumping area of any community east of the Mississippi -- with 13 pumping centers for freshwater - serving 150,000 customers. There are four types of water wells, identified as Type I (Municipal, serving 25 or more people 24 hours per day for 60 or more days), Type II (serve 25 or more people for 60 days -- example: Township Halls), Type III (duplex or small businesses with less than 25 employees, and Type IV (private individual water wells)

### **Public Health Emergencies:**

Michigan Department of Community Health:

The Director of the Department of Community Health, and local public health officers, have the authority (under the Michigan Public Health Code—1978 PA 368, as amended) to take those steps determined necessary and prudent to prevent epidemics and the spread of hazardous communicable diseases, or to effectively mitigate other conditions or practices that constitute a menace to public health. The Director and local public health officers can issue written orders to implement the required preventive steps and/or responses, and those orders can be enforced through the imposition of civil and criminal

penalties for failure to comply. State and local health departments have detailed, written emergency operations plans that address public health emergencies.

### **U.S. Centers for Disease Control and Prevention:**

At the national level, the U.S. Centers for Disease Control and Prevention (CDC), a branch of the Department of Health and Human Services, has the responsibility and authority to investigate public health emergencies to determine their cause, probable extent of impact, and appropriate mitigation measures. The CDC can also assist state and local public health officials in establishing health surveillance and monitoring systems/programs, and in disseminating information on prevention and treatment to the general public. The CDC announced dedicated funding for bioterrorism response, and Michigan has been strengthening its surveillance and intervention infrastructures with these funds. Since 2001, the CDC has also provided dedicated funding for public health emergency preparedness programs. In 2002, the MDCH Office of Public Health Preparedness was established to oversee these cooperative agreements. In the 2009 Influenza A (H1N1) event, CDC coordinated with numerous health departments across the country, tracked influenza cases, and provided information about outbreak trends. Tests were also performed, to verify whether flu cases were indeed of the correct type.

### **Michigan Pandemic Influenza Plan:**

In October 2009, the Michigan Department of Community Health updated the “Michigan Pandemic Influenza Plan,” to provide response guidelines for an influenza pandemic affecting Michigan. Although the plan cannot eliminate the disease, it will aid in reducing the impact by enabling state and local agencies to anticipate, prepare for, and respond efficiently and effectively to the disease. The plan, which is divided into pre-pandemic, pandemic, and post-pandemic phases, details necessary activities at the state and local level related to:

- ☐ ☐ command and management,
- ☐ ☐ crisis communications,
- ☐ ☐ surveillance,
- ☐ ☐ laboratory testing,
- ☐ ☐ community containment,
- ☐ ☐ infection control in health care facilities,
- ☐ ☐ vaccines and antivirals/medical management,
- ☐ ☐ data management,
- ☐ ☐ border/travel issues
- ☐ ☐ recovery

The Michigan Pandemic Influenza Emergency Response Plan is available for review and downloading at

The Michigan Pandemic Influenza Emergency Response Plan is available for review and downloading at [https://www.michigan.gov/flu/0,6720,7-321-101696\\_106386-556882--,00.html](https://www.michigan.gov/flu/0,6720,7-321-101696_106386-556882--,00.html)

### **Transportation Accidents:**

#### Air Transportation:

The Michigan Aeronautics Commission of the MDOT administers several programs aimed at improving aviation safety and promoting airport development. The Commission's safety programs include: 1) registering aircraft dealers, aircraft, and engine manufacturers; 2) licensing airports and flight schools; 3) inspecting surfaces and markings on airport runways; and 4) assisting in removal of airspace hazards at airports. The Commission's airport development program includes providing state funds for airport development and airport capital improvements – many of which contribute to overall air transportation safety. The Federal Aviation Administration (FAA) contracts with the MDOT for the inspection of the state's 238 public- use airports on an annual basis. The FAA has regulatory jurisdiction over operational safety and aircraft worthiness. The National Transportation Safety Board (NTSB) investigates all aircraft crashes that involve a fatality and publishes reports on its findings (see the NTSB section below).

#### Bus Safety:

School bus safety programs and initiatives generally fall into two categories: 1) driver skill enhancement, competency training and 2) physical inspections of bus mechanical and safety equipment. The Motor Carrier Division, Michigan

Department of State Police, inspects all school buses and other school transportation vehicles (21,000 units) on an annual basis. In addition, all school bus drivers in Michigan must take and pass a bus driver education and training program, and then take regular refresher courses to maintain their certification to operate a school bus. School bus drivers must also pass an annual medical examination.

Critical Infrastructure in Kalamazoo County

One of the key steps in emergency mitigation planning is to identify the assets being protected by the endeavor. In addition to the generalized, high-level targets of people, property, and the environment, a more in-depth listing is needed. What follows here is not meant to be a comprehensive inventory of all assets in Kalamazoo County, but an insight for the users and stakeholders of this document to establish just how much critical infrastructure there is in the county. The listing is structured along the Community Lifelines construct, to reinforce that program within our planning framework. There are seven primary Lifelines, with each having a few or several sub-sectors.

The seven Primary Lifelines are:

- Safety and Security • Food, Water, Shelter • Health and Medical •Energy and Power •
- Communications ••Transportation • HazMat •



| SAFETY AND SECURITY      | (Subcomponents from FEMA BRIC in red.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Law Enforcement/Security | <div>•Law Enforcement Agencies and Stations:</div> <div>Michigan State Police</div> <div>Kalamazoo County Sheriff's Office</div> <div>City of Kalamazoo Dept. of Public Safety</div> <div>City of Portage Police Department</div> <div>Kalamazoo Township Police Dept.</div> <div>Richland Village Police Department</div> <div>Village of Augusta Police Department</div> <div>Village of Schoolcraft Police Dept.</div> <div>Vicksburg PD</div> <div>Western Michigan University Public Safety</div> <div>Kalamazoo Valley Community College Public Safety</div> <div>Federal Bureau of Investigation Kalamazoo Resident Agency</div> <div>•Correctional Facilities:</div> <div>Kalamazoo County Jail</div> <div>MDOC/KPEP Facilities</div> <div>•Site Security- Private Security covering Commercial Facilities, Hospitals, etc.</div> |



...continued

|                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Fire Services</b>       | <p>•<b>Fire Departments and Stations:</b><br/> Alamo Twp. FD<br/> Climax Twp. FD<br/> Comstock Charter Twp. FD<br/> Cooper Twp. FD<br/> Galesburg-Charleston FD<br/> Kalamazoo Dept. of Public Safety<br/> Kalamazoo Twp. FD<br/> Oshtemo FD<br/> Pavilion Twp. FD<br/> Portage FD<br/> Richland TWP. FD<br/> Ross-Augusta FD<br/> South Kalamazoo County Fire Authority</p> <p>•<b>Other Firefighting Resources:</b><br/> AZO (Kalamazoo/Battle Creek International Airport)<br/> Pfizer<br/> DNR<br/> USDA/Forest Service<br/> Kalamazoo Nature Center Control Burn Unit</p> |
| <b>Search and Rescue</b>   | Great Lakes Drone Company (UAS/UUV)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Government Services</b> | <p>•<b>Emergency Operation Centers</b><br/> •<b>Government Offices</b><br/> •<b>Schools</b><br/> •<b>Public Records</b><br/> •<b>Historic/Cultural Resources</b></p>                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Community Safety</b>    | <p>•<b>Flood Control</b><br/> •<b>Other Hazards</b><br/> •<b>Protective Actions (Planning/Zoning/Code Enforcement?)</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                    |



| <b>FOOD, WATER, SHELTER</b> | (Subcomponents from FEMA BRIC in red.)                                                                                                                                                                                                                                                                                                                                                                                                |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Food</b>                 | <ul style="list-style-type: none"> <li>•<b>Commercial Food Distribution</b></li> <li>•<b>Commercial Food Supply Chain</b></li> <li>•<b>Food Distribution Programs (e.g., Food Banks)</b></li> </ul> <p>South Michigan Food Bank<br/>Loaves and Fishes<br/>Numerous Private/NGO/Faith-Based Food Banks</p>                                                                                                                             |
| <b>Water</b>                | <ul style="list-style-type: none"> <li>•<b>Drinking Water Utilities (intake, treatment, storage, and distribution)</b></li> <li>•<b>Wastewater Systems</b></li> <li>•<b>Commercial Water Supply Chain</b></li> </ul> <p>City of Kalamazoo Wastewater Division<br/>City of Kalamazoo System<br/>Extensive Water Well-head Field*<br/>Kalamazoo Wastewater Treatment Facility, including lift stations, etc. (serves entire county)</p> |
| <b>Shelter</b>              | <p><b>American Red Cross of Southwest Michigan</b><br/>ARCSWM is the primary agency for disaster sheltering.<br/>Numerous Private/NGO/Faith-Based orgs also contribute depending on event/incident. Larger municipalities also have sheltering plans for weather and incident contingencies.</p>                                                                                                                                      |
| <b>Agriculture</b>          | <ul style="list-style-type: none"> <li>•<b>Animals and Agriculture</b></li> </ul> <p>Numerous and Diverse (Approx 40% of county land is Ag, and almost 4k people are employed directly in the sector.)<br/>Zoetis Animal Health (R&amp;D)</p>                                                                                                                                                                                         |





| HEALTH AND MEDICAL      | (Subcomponents from FEMA BRIC in red.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Medical Care</b>     | <ul style="list-style-type: none"> <li>•<b>Hospitals</b><br/>Bronson Methodist Hospital and Ancillary Practices<br/>Ascension Borgess Kalamazoo Hospital and Ancillary Practices)<br/>WellNow® Urgent Care- 2 KZO Locations<br/>Numerous Private Medical Practices</li> <li>•<b>Dialysis</b><br/>13 Private Clinics</li> <li>•<b>Pharmacies</b><br/>Approximately 65 Pharmacies</li> <li>•<b>Long-Term Care Facilities</b><br/>11 Licensed Skilled Nursing Facilities (per MDHHS)<br/>55 Assisted Living Facilities (per SeniorGuidance.org)</li> <li>•<b>VA Health System</b><br/>Battle Creek VA Hospital (Calhoun County-abuts Kalamazoo County)</li> <li>•<b>Veterinary Services</b><br/>Kalamazoo Humane Society<br/>Kalamazoo County Animal Services<br/>Approx. 28 Private Veterinary Service Providers<br/>Animal Rescue Project (Private/Non-Profit)<br/>Kalamazoo Animal Rescue (Private/Non-Profit)</li> <li>•<b>Home Care</b><br/>Kalamazoo County Area Agency on Aging<br/>Senior Services of SW Michigan<br/>At least 6 Private Home Health Providers</li> </ul> |
| <b>Patient Movement</b> | <ul style="list-style-type: none"> <li>•<b>Emergency Medical Services</b><br/>Pride Care Ambulance/EMS<br/>Life EMS<br/>Numerous Medical Transport Private Providers</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |





...continued

|                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Public Health</b></p>       | <ul style="list-style-type: none"> <li>•<b>Hospitals</b><br/>Bronson Methodist Hospital and Ancillary Practices<br/>Ascension Borgess Kalamazoo Hospital and Ancillary Practices)<br/>WellNow® Urgent Care- 2 KZO Locations<br/>Numerous Private Medical Practices</li> <li>•<b>Dialysis</b><br/>13 Private Clinics</li> <li>•<b>Pharmacies</b><br/>Approximately 65 Pharmacies</li> <li>•<b>Long-Term Care Facilities</b><br/>11 Licensed Skilled Nursing Facilities (per MDHHS)<br/>55 Assisted Living Facilities (per SeniorGuidance.org)</li> <li>•<b>VA Health System</b><br/>Battle Creek VA Hospital (Calhoun County-abuts Kalamazoo County)</li> <li>•<b>Veterinary Services</b><br/>Kalamazoo Humane Society<br/>Kalamazoo County Animal Services<br/>Approx. 28 Private Veterinary Service Providers<br/>Animal Rescue Project (Private/Non-Profit)<br/>Kalamazoo Animal Rescue (Private/Non-Profit)</li> <li>•<b>Home Care</b><br/>Kalamazoo County Area Agency on Aging<br/>Senior Services of SW Michigan<br/>At least 6 Private Home Health Providers</li> </ul> |
| <p><b>Fatality Management</b></p> | <ul style="list-style-type: none"> <li>•<b>Mortuary and Post-Mortuary Services</b><br/>5th District Medical Response Coalition (5DMRC)<br/>WMU/WMed Stryker School of Medicine Morgue<br/>Borgess and Bronson Hospitals: in-house facilities.<br/>Private Mortuaries/Funeral Homes</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |



...continued

|                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Medical Supply Chain</b></p> | <ul style="list-style-type: none"> <li>•<b>Blood/Blood Products</b><br/>American Red Cross<br/>Numerous Private Blood/Plasma Donation Centers</li> <li>•<b>Manufacturing:</b> <ul style="list-style-type: none"> <li><b>Pharmaceutical</b><br/>Pfizer Corp-World Headquarters/Global Supply</li> <li><b>Device</b><br/>Stryker Corporation World HQ</li> <li><b>Medical Gases</b><br/>Airgas Corp. (4 locations)<br/>Praxair Distribution, Inc.<br/>K-D Sales<br/>Purity Cylinder Gases, Inc.</li> </ul> </li> <li>•<b>Distribution</b><br/>5DMRC</li> <li>•<b>Critical Clinical Research</b><br/>Charles River Labs, Inc.<br/>WMU Homer Stryker School of Medicine</li> <li>•<b>Sterilization</b></li> <li>•<b>Raw Materials</b><br/>5thDistrict Medical Response Coalition</li> </ul> |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|



*Credit: Stryker Corp.*



| ENERGY AND POWER    | (Subcomponents from FEMA BRIC in red.)                                                                                                                                                                                                                                                                                                     |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Power (Grid)</b> | <ul style="list-style-type: none"> <li>•<b>Generation Systems</b><br/>Morrow Dam Generating Plant<br/>Western Michigan University Power Plant</li> <li>•<b>Transmission Systems</b></li> <li>•<b>Distribution Systems</b></li> </ul>                                                                                                       |
| <b>Fuel</b>         | <ul style="list-style-type: none"> <li>•<b>Refineries/ Fuel Processing</b></li> <li>•<b>Fuel Storage</b></li> <li>•<b>Pipelines</b><br/>Wolverine Pipeline (16" high-pressure petroleum transit)<br/>Utility Transmission Pipelines throughout the county.</li> <li>•<b>Fuel Distribution (e.g., gas stations, fuel points)</b></li> </ul> |



*Credit: [theecoexperts.co.uk](http://theecoexperts.co.uk)*



| COMMUNICATIONS                          | (Subcomponents from FEMA BRIC in red.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Infrastructure (Including Cyber)</b> | <ul style="list-style-type: none"> <li>•<b>Wireless</b></li> <li>•<b>Cable Systems and Wireline</b><br/>Comcast Cable and Broadband System<br/>Spectrum Cable and Broadband System</li> <li>•<b>Broadcast (TV and Radio)</b><br/><b>Primary Local TV Stations:</b><br/><b>Primary Local Broadcast Radio Stations:</b></li> <li>•<b>Satellite</b><br/>StarLink Satellite Broadband Network (due to initialize in 2021)<br/>HughesNet</li> <li>•<b>Data Centers/Internet</b><br/>CTS Telecom Metro-EW Fiber-Optic Network Infrastructure<br/>AT&amp;T POTS/Fiber Net<br/>Major Carrier Cellular Tower Systems<br/>Rural Broadband Initiative (WIP)</li> </ul> |
| <b>Alerts, Warnings, and Messages</b>   | <ul style="list-style-type: none"> <li>•<b>Local Alert/Warning Ability</b></li> <li>•<b>Access to IPAWS (WEA, EAS, NWR)</b></li> <li>•<b>NAWAS Terminals</b><br/>EverBridge®</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>911 and Dispatch</b>                 | <ul style="list-style-type: none"> <li>•<b>Public Safety Answering Points</b><br/>*See Law Enforcement Agency list in <b>Safety and Security</b></li> <li>•<b>Dispatch</b><br/>Kalamazoo County Consolidated Dispatch<br/>City of Kalamazoo Public Safety Dispatch</li> </ul>                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Responder Communications</b>         | <ul style="list-style-type: none"> <li>•<b>Land Mobile Radio networks (LMR)</b><br/>MSPSC<br/>Portage Public Safety Radio Net (transitioning to 800mhz Countywide)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Finance</b>                          | <ul style="list-style-type: none"> <li>•<b>Banking Services</b><br/>Numerous Banks and Credit Unions<br/>PNC facility?</li> <li>•<b>Electronic Payment Processing</b></li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |



| TRANSPORTATION    | (Subcomponents from FEMA BRIC in red.)                                                                                                                                           |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Highways/Roadways | <ul style="list-style-type: none"> <li>•Roads</li> <li>•Bridges</li> </ul>                                                                                                       |
| Mass Transit      | <ul style="list-style-type: none"> <li>•Bus</li> <li>•Rail (N/A)</li> </ul>                                                                                                      |
| Railway           | <ul style="list-style-type: none"> <li>•Freight<br/>Norfolk and Southern Railroad<br/>Grand Elk Railroad/Switch Yard</li> <li>•Passenger<br/>Amtrak</li> </ul>                   |
| Aviation          | <ul style="list-style-type: none"> <li>•Commercial (e.g. cargo/passenger)<br/>Kalamazoo/Battle Creek International Airport (AZO)</li> <li>•General</li> <li>•Military</li> </ul> |



| HAZARDOUS MATERIALS           | (Subcomponents from FEMA BRIC in red.)                                                                                                                                                                                                                                                                                                          |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Facilities                    | <ul style="list-style-type: none"> <li>•Oil/HAZMAT Facilities (e.g. chemical, nuclear)<br/><i>Note: Chem facilities subject to CVI restrictions should not be listed in public-facing documents. Will refer to LEPC.</i></li> <li>•Oil/HAZMAT/Toxic Incidents from Facilities<br/>Primary Response by KalCounty Regional HazMat Team</li> </ul> |
| HazMat, Pollutants, Chemicals | <ul style="list-style-type: none"> <li>•Oil/HAZMAT/Toxic Incidents from Non-Fixed Facilities<br/>Primary Response by KalCounty Regional HazMat Team</li> <li>•Radiological or Nuclear Incidents<br/>51st Civil Support Team (Fort Custer-State Asset)</li> </ul>                                                                                |

## Chapter 2: The Planning Process

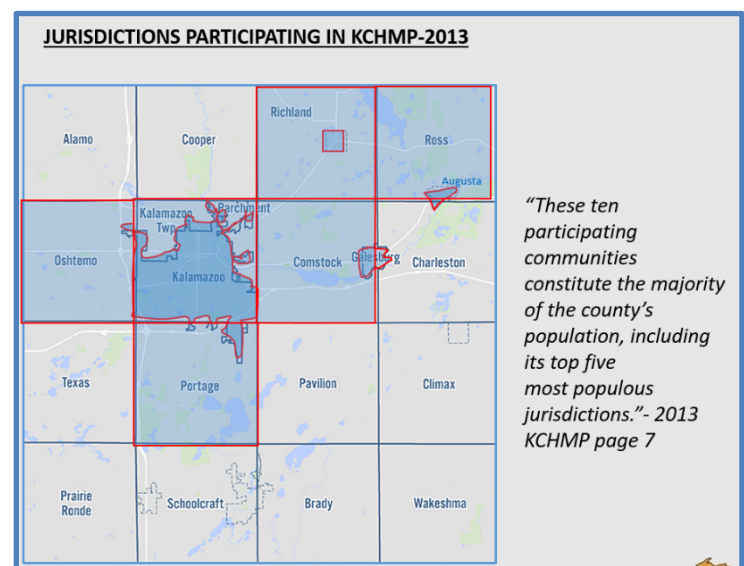
During the planning team’s review of the 2013 version of the Kalamazoo County Hazard Mitigation Plan, several issues were noted that needed to be addressed as part of the dedicated effort to make this updated version more of a public-facing, interactive document. Prominent among these issues were: a lack of inclusionary scope for a “whole-community” vision; an overabundance of low-resolution maps and graphics, a disjointed and highly subjective local community survey response section (then included as an Appendix, which has been eliminated in favor of other sources), and; the unwieldy size of the document as a whole. The Team addressed these and other issues in the planning process thusly:

- In stating the local jurisdictional participation in the 2013 update, the assertion was made that “a majority of the ...county’s population” had participated in the update process (see inset table and map at right). And while that is an accurate statement, the demographic and geographic reality is that with only 10 out of 24 units of government declaring active participation, nearly 30% of the population and over 60% of the total area of the county were left out of eligibility for participation in FEMA disaster mitigation grant funding. The 2020 Planning Team, including the Coordinator (Sheriff Rick Fuller) and the Director of Emergency Management (Mike Corfman) found this unacceptable, particularly in light of FEMA guidance on a “Whole Community/All Hazards” approach to preparedness and response, which also applies to mitigation planning.

A new approach was needed for garnering local participation and eligibility. It was decided that public presentations would be made to and participation directly encouraged by *all* 24 local units of government (UOGs), if possible. Thus, between January 6<sup>th</sup> and December 8<sup>th</sup> of 2020, multimedia presentations were made at public meetings of the various governing bodies of all UOGs, with the exception of 1 outlying Township and 1 Village, which ceased holding open meetings because of restrictions imposed on gathering size due to the Coronavirus (CoVID-19) pandemic Emergency Orders imposed by the Governor beginning in March and extended by the state Department of Health and Human Services into and through December of 2020. Additional presentations were made to various stakeholder groups to gather input and feedback, including the Township Supervisors’ Association, the Kalamazoo County Response Coalition, and the County Road Commission, among others.

As a result of this endeavor, the KCHMP now enjoys participation by over 99% of the population and 94% of the geographic area of the county.

| Minor Civil Division          | 2010 population |
|-------------------------------|-----------------|
| Alamo Township                | 3,762           |
| Augusta Village*              | 885             |
| Brady Township                | 4,248           |
| Charleston Township           | 1,975           |
| Climax Township               | 2,463           |
| Climax Village*               | 767             |
| Comstock Charter Township     | 14,854          |
| Cooper Charter Township       | 10,111          |
| Galesburg City                | 2,009           |
| Kalamazoo City                | 74,262          |
| Kalamazoo Charter Township    | 21,918          |
| Oshtemo Charter Township      | 21,705          |
| Parchment City                | 1,804           |
| Pavilion Township             | 6,222           |
| Portage City                  | 46,292          |
| Prairie Ronde Township        | 2,250           |
| Richland Township             | 7,580           |
| Richland Village*             | 751             |
| Ross Township                 | 4,664           |
| Schoolcraft Township          | 8,214           |
| Schoolcraft Village*          | 1,525           |
| Texas Charter Township        | 14,697          |
| Vicksburg Village*            | 2,906           |
| Wakeshma Township             | 1,301           |
| <b>KALAMAZOO COUNTY TOTAL</b> | <b>250,331</b>  |





In addition, planning progress update presentations were made during regular meetings of the Kalamazoo County Disaster Committee in 2019 and 2020, where input and feedback was also solicited.

Shown here is the updated list of local jurisdictions who have made public proclamations to participate in the 2020 update of the Kalamazoo County Hazard Mitigation Plan. The input and feedback process initiated by the Planning Team with in-person presentations to most of these jurisdictions continues with open dialog and encouragement for them to take an active role in the workings of the Kalamazoo County Disaster Committee and other endeavors under consideration and development to further the mission of hazard mitigation in the county. In all cases, the jurisdictions' governing bodies were requested to make a formal "Motion to Participate in the KCHMP Update Process", and therefore those Motions would appear for the record as part of the meeting minutes and agendas. The same approach will be used for "Resolution(s) to Adopt the Updated KCHMP".

Of the jurisdictions shown here as participating in this update process, the following are new participants: Alamo, Brady, Charleston, and Climax Townships, Cooper Charter Township, Parchment City, Pavilion Township, Schoolcraft Township, Schoolcraft Village, Texas Charter Township, Vicksburg Village, and Wakeshma Township. Continuing their participation from the previous version of the KCHMP are: Augusta Village, Comstock Charter Township, Galesburg City, the City of Kalamazoo, Kalamazoo Charter Township, Oshtemo Charter Township, Portage City, Richland Township, Richland Village, and Ross Township. The only jurisdictions not actually signed on are Climax Village and Prairie Ronde Township. Their lack of participation can be mostly attributed to the great difficulty faced in conducting open meetings and public communication during the CoVID-19 pandemic restrictions imposed by the State.

The Planning Team made a conscientious effort to be visible in all parts of the county during this process. Many informal meetings took place with stakeholders throughout but especially in the farther reaches of the county. This was done to gauge and foster public awareness in both the plan and in hazard mitigation as a concept. In many areas of the country, Emergency Management agencies often toil below the radar of the general citizenry, and it was felt that this update cycle, and the attendant developments in FEMA doctrine regarding "Whole Community/All Hazards" and the Community Lifelines construct (and its iconography and graphic imagery), presented a perfect opportunity to raise the visibility of the Kalamazoo County Office of Emergency Management, the Kalamazoo County Disaster Committee, and the various ways that these entities can engage the public, other organizations, and also

| <b>Local Jurisdictions Participating in 2020</b> | <b>2020<br/>population<br/>(7/2019 Estimated)</b> |
|--------------------------------------------------|---------------------------------------------------|
| Alamo Township                                   | 3,928                                             |
| Augusta Village* (in Ross TWP)                   | 900                                               |
| Brady Township                                   | 4,399                                             |
| Charleston Township                              | 2,071                                             |
| Climax Township                                  | 2,583                                             |
| Climax Village* (in Climax TWP)                  | 805+                                              |
| Comstock Charter Township                        | 15,600                                            |
| Cooper Charter Township                          | 10,900                                            |
| Galesburg City                                   | 2,128                                             |
| Kalamazoo City                                   | 77,733                                            |
| Kalamazoo Charter Township                       | 23,129                                            |
| Oshtemo Charter Township                         | 23,158                                            |
| Parchment City                                   | 1,826                                             |
| Pavilion Township                                | 6,549                                             |
| Portage City                                     | 48,978                                            |
| Prairie Ronde Township                           | 2,379                                             |
| Richland Township                                | 8,140                                             |
| Richland Village*                                | 789                                               |
| Ross Township                                    | 4,912                                             |
| Schoolcraft Township                             | 8,995                                             |
| Schoolcraft Village*                             | 1,431^                                            |
| Texas Charter Township                           | 16,411                                            |
| Vicksburg Village*                               | 3,080                                             |
| Wakeshma Township                                | 1,322                                             |
| <b>KALAMAZOO COUNTY TOTAL</b>                    | <b>265, 066</b>                                   |



other agencies within Kalamazoo County Government and sub-jurisdictions. We feel that this special emphasis will pay long-term dividends in planning, outreach, dialog, and interoperability.

Additionally during this process, the OEM initialized a change in the name of the KCDC to the Kalamazoo County Disaster Preparedness Committee (KCDPC). It was felt that this would more accurately reflect the core mission of the committee, and encourage a preparedness mindset among participants.

Members of the team also made regular appearances at regional and state planning and response meetings (many in 2020-2021 via video conference due to CoVID). This included the 5<sup>th</sup> District Medical Response Coalition, The EOC Support Agency Briefings for Kalamazoo County's CoVID Response, and Kalamazoo County's newly-revitalized Response Coalition (consisting of dozens of Volunteer Organizations Aiding in Disaster). The Participation in these meetings also greatly enhanced the community's awareness of the KCHMP and our overall mitigation and preparedness strategy.

- As the Planning Team also embraced advances in digital technology and resources that have emerged or been enhanced since 2013, it was decided that further streamlining of the plan could also be achieved by eliminating some of the maps and graphics found in the 2013 update. There were a number of rationales for this:
  - As mentioned above, many of these maps and images were of low-quality resolution, and therefore did not render well in digital format when lifted from their original sources.
  - Many of the maps were copied from other, readily-available sources, including the County Master Plan (CMP). In the past, referring a reader to another source may have been cumbersome and time-consuming, but the ability to insert hyperlinks at will in a digital document format means that readers and users can instantly reference these other sources. This means that we can reduce the overall size and complexity of our document while also raising awareness and visibility of these other sources. This leveraging is especially important with regards to the CMP, as it represents a significant body of important work within the county that overlaps the KCHMP in many areas, particularly in Community Profile areas.
  - Additionally, these linked sources are themselves updated regularly, but rarely on a schedule that would match the timetable of the KCHMP revision process. Linking to the sources rather than copying their output means the reader/user has the most up-to-date information available.
- In looking at the overall size of the KCHMP, the Planning Team sought ways to simplify and render the 237 pages of the 2013 version into a more compact and reader-friendly format. We looked at alternatives to this end within each and every chapter and the appendices.
  - The Introduction and Chapters 1 and 2 from the 2013 Plan were rewritten and re-ordered for flow and concision. The order is now Introduction; Chapter 1 ("Community Profile"); Chapter 2 ("The Planning Process"), and a new Chapter 3, which addresses and explains the Core Capabilities/Community Lifelines approach and their components, including some suggested mitigation activities derivative of that construct.
  - Chapter 4 of the 2013 KCHMP ("Evaluation of Alternatives") is actually a status update of Action Items from the original 2006 document. It covers a total of 74 pages and documents 150 individual action items. Of those, only 20 are listed as "Works in Progress" as of 2013, and 27 are listed as "Ongoing". Many of these are outdated and some perhaps should not have been given much if any attention at any juncture, given the rarity or even non-existence of any historical record of significant occurrences in Kalamazoo County (i.e. Seismic Activity).
  - "Chapter 5: Action Items" lists and prioritizes items not listed as "Completed" in Chapter 4. Again, this appears haphazard at best and tends to be confusing and redundant on the whole. The items within are ranked as "High", "Medium", "Moderate". Some items remain relevant, but the overall structure of Chapters 4 and 5 is outdated. The Planning Team decided to leverage the new Hazard/Risk Analysis (Chapter 4) and the Hazard Event Narratives (Chapter 5) to create a case for revised Action Items that could be addressed by new Mitigation Projects or the continuance of some of the older efforts.
  - "Chapter 6: Follow-Up" constituted basically a single page of text (plus one line). This will be replaced by an Afterword: "The Way Forward", which will outline the intention of the Planning Team, OEM, and the KCDC as to how they will continue to adapt and revise The Plan in the future, hoping to avoid a break in the continuity of the planning process, as identified by FEMA and MSP/EMHSD.

- o Lastly, the Appendix “Local Community Sections” was drastically pared down in favor of simple survey responses from individual units of government and major stakeholders in the community at large. This is a work in progress itself as constraints of time and outreach due to the ongoing CoVID-19 restrictions still in place at the time of this writing. It was felt that the format of these survey responses was somewhat arbitrary and led to wide disparities in risk statements, even in adjacent communities, and particularly with regards to event potential. The most valuable feedback was found in statements of specific historical events that may have affected individual localities with unique consequences. Examples of this were preserved in the condensed Appendix B.

Additionally, in order to ensure that the planning process will be an ongoing effort at both updating and enhancing the effectiveness of the plan, the planning team endeavored to adopt a strategic approach to the effort based in part on “The Planning P”. This is a construct widely used in incident and event response and team building. It codifies a step-by-step process wherein the plan itself is in a constant state of performance-based review and improvement, with annual reviews during the 5-year planning cycle, and an Update//Review Committee to be in place 18 months before the update cycle is set to renew, enabling the actual updating process to commence on schedule. This will eventually encompass the already-in-place dialog within the KCDC (now the KCDPC), which includes local jurisdictional representation, as well as various organizations, agencies, and private-sector participation. Indeed, the standard agenda of the regularly scheduled meetings of the KCDPC includes a “roll-call” of attendees, where updates and ideas are solicited. Sub-committees can be readily formed based on geographical and “Community Lifelines” sectors to address specific and/or emergent issues. The KCDPC can also solicit input from the identified points-of-contact from participating sub-jurisdictions individually or ad-hoc. Our outreach efforts have borne fruit in this regard, as we now have raised the awareness and profile of both the OEM and the KCHMP, and many in the wider community previously oblivious are now eager to contribute and participate.

Below is a listing of the primary contacts for involvement in the planning process cycle, representing all 23 participating sub-jurisdictions in Kalamazoo County. For most townships, especially outlying rural communities, the primary contact is the Township Supervisor. The supervisors meet regularly as a group, and the Planning Team will maintain regular contact with the group and attend at least one meeting per year to solicit feedback and continual information sharing about potential and existing projects. The Parchment and Alamo contacts (both elected Clerks) are contacted periodically for their updated input. The other city contacts (Portage, Kalamazoo), and the Augusta Village chief of police, are regular attendees in the KCDPC meetings, and are active participants. This list also appears as an Appendix (A), which includes dates of adoption, etc., and can be modified as needed going forward.



| <b>UOG</b>                   | <b>Primary Participating Contact</b> |
|------------------------------|--------------------------------------|
| <b>ALAMO TWP</b>             | Cindy Snyder, Clerk                  |
| <b>AUGUSTA VLG</b>           | J. Heppler, Chief AVPD               |
| <b>BRADY TWP</b>             | Tracey Locey, Supervisor             |
| <b>CHARLESTON TWP</b>        | Jerry Vander Roest, Supervisor       |
| <b>CLIMAX TWP</b>            | Trent Piper, Supervisor              |
| <b>CLIMAX VLG</b>            | Bruce Rolfe, Supervisor              |
| <b>COMSTOCK CHARTER TWP</b>  | Randy Thompson, Supervisor           |
| <b>COOPER CHARTER TWP</b>    | Jeff Sorenson, Supervisor            |
| <b>GALESBURG CITY</b>        | Karen Bresson, City Mgr              |
| <b>KALAMAZOO CHARTER TWP</b> | Don Martin, Supervisor               |
| <b>KALAMAZOO CITY</b>        | Matt Huber, Asst. Chief KDPS         |
| <b>OSHTIMO CHARTER TWP</b>   | Libby Heiny-Cogswell, Supervisor     |
| <b>PARCHMENT CITY</b>        | Shannon Stutz, City Clerk            |
| <b>PAVILION TWP</b>          | John Speeter, Supervisor             |
| <b>PORTAGE CITY</b>          | Mike Carroll, Asst City Mgr          |
| <b>RICHLAND TWP</b>          | Lysanne Harma, Supervisor            |
| <b>RICHLAND VLG</b>          | Dave Greive, Village Pres.           |
| <b>ROSS TWP</b>              | Rob Baker, Supervisor                |
| <b>SCHOOLCRAFT TWP</b>       | Don Ulsh, Supervisor                 |
| <b>SCHOOLCRAFT VLG</b>       | Tammy Youngs, Asst Village Mgr       |
| <b>TEXAS CHARTER TWP</b>     | Nick Loeks, Supervisor               |
| <b>VICKSBURG VLG</b>         | Jim Mallery, Village Mgr             |
| <b>WAKESHMA TWP</b>          | Jasaon Gatlin, Supervisor            |

The Planning Team also endeavored to integrate the KCHMP with local zoning and building authorities, both through regular contact and via once-per-year attendance at the Supervisors Association meetings. Local community councils and boards have planning and zoning authority under the Michigan Zoning Enabling Act (Act 110 of 2006). Staff of the OEM attend FEMA Mitigation/Community Planning Integration training and are constantly seeking ways to incorporate those concepts in the ongoing planning process and inculcate mitigation concepts into day-to-day business activities of those local jurisdictions. The Planning Team intends to formalize the public interaction with scheduled, designated “Town Hall-style” open meetings, wherein representatives will offer updates on existing projects and solicit public feedback on evolving or emergent needs in the communities of Kalamazoo County. These meetings will be conducted annually in springtime (when Michiganders are at their best), and more often if the need arises.

Overall, The Planning Team believes it has taken a holistic, structured approach to updating and maintaining the plan, with cooperation from all facets of public and governmental input sources, within the county as well as beyond, at the regional and wider levels.

Once the plan is in place and adopted, these processes for input, evaluation, and updating the KCHMP will be formalized into a defined schedule, with funding request and new planning team organization to be started prior to the two-year mark to the due-date of required updating of the plan.

## Chapter 3: Core Capabilities and Community Lifelines

### AN INTRODUCTION TO INTEGRATION

It is the intention of the Planning Team that this version of the KCHMP take strides towards updating not just the content, but the *intent* and focus of the overall plan, leveraging the work done before with technologies that have emerged since, in order to bring the Plan more into line with the renewed and revised focus mandated by FEMA which is in the process of being adopted nationally across all phases of disaster preparedness and response.

To that end, we decided to become one of the first local jurisdictions in the country to attempt to integrate the Community Lifelines construct into the Mitigation Planning phase of the emergency management framework. We offer here a brief explanation of both Core Capabilities and Community Lifelines, how they are intertwined, and how Kalamazoo County intends to begin to adopt them. To that end, we have sought to further define Core Capabilities as they relate or are identified in key stages of the disaster continuum. To integrate them into our planning process, we delineate them into *pre-disaster* activities (*Prevention, Protection, and Mitigation*), and *post-event* (*Response, and Recovery, which can also be enhanced through Mitigation actions*).

**Pre-Disaster Core Capabilities:** When a community seeks to build resiliency *to* the effects of disasters or major events, a greater return on investment will be seen in mitigation efforts and projects undertaken *beforehand*. In order to encourage a better understanding of this for stakeholders and decision-makers, we need to define those vital capabilities in easy-to-understand, relevant terms.

|                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Community Resilience                 | <b>Mission Area:</b> Mitigation<br>Enable the recognition, understanding, communication of, and planning for risk and empower individuals and communities to make informed risk management decisions necessary to adapt to, withstand, and quickly recover from future incidents.                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Cybersecurity                        | <b>Mission Area:</b> Protection<br>Protect (and if needed, restore) electronic communications systems, information, and services from damage, unauthorized use, and exploitation.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Forensics and Attribution            | <b>Mission Area:</b> Prevention<br>Conduct forensic analysis and attribute terrorist acts (including the means and methods of terrorism) to their source, to include forensic analysis as well as attribution for an attack and for the preparation for an attack in an effort to prevent initial or follow-on acts and/or swiftly develop counter-options.                                                                                                                                                                                                                                                                                                                                                                  |
| Intelligence and Information Sharing | <b>Mission Areas:</b> Prevention, Protection<br>Provide timely, accurate, and actionable information resulting from the planning, direction, collection, exploitation, processing, analysis, production, dissemination, evaluation, and feedback of available information concerning physical and cyber threats to the United States, its people, property, or interests; the development, proliferation, or use of WMDs; or any other matter bearing on U.S. national or homeland security by local, state, tribal, territorial, federal, and other stakeholders. Information sharing is the ability to exchange intelligence, information, data, or knowledge among government or private sector entities, as appropriate. |
| Interdiction and Disruption          | <b>Mission Areas:</b> Prevention, Protection<br>Delay, divert, intercept, halt, apprehend, or secure threats and/or hazards.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Long-term Vulnerability Reduction    | <b>Mission Area:</b> Mitigation<br>Build and sustain resilient systems, communities, and critical infrastructure and key resources lifelines so as to reduce their vulnerability to natural, technological, and human-caused threats and hazards by lessening the likelihood, severity, and duration of the adverse consequences.                                                                                                                                                                                                                                                                                                                                                                                            |

|                                                        |                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operational Coordination                               | <b>Mission Areas:</b> All<br>Establish and maintain a unified and coordinated operational structure and process that appropriately integrates all critical stakeholders and supports the execution of core capabilities.                                                                                                                                                                   |
| Physical Protective Measures                           | <b>Mission Area:</b> Protection<br>Implement and maintain risk-informed countermeasures, and policies protecting people, borders, structures, materials, products, and systems associated with key operational activities and critical infrastructure sectors.                                                                                                                             |
| Planning                                               | <b>Mission Areas:</b> All<br>Conduct a systematic process engaging the whole community as appropriate in the development of executable strategic, operational, and/or tactical-level approaches to meet defined objectives.                                                                                                                                                                |
| Public Information and Warning                         | <b>Mission Areas:</b> All<br>Deliver coordinated, prompt, reliable, and actionable information to the whole community through the use of clear, consistent, accessible, and culturally and linguistically appropriate methods to effectively relay information regarding any threat or hazard, as well as the actions being taken and the assistance being made available, as appropriate. |
| Risk and Disaster Resilience Assessment                | <b>Mission Area:</b> Mitigation<br>Assess risk and disaster resilience so that decision makers, responders, and community members can take informed action to reduce their entity's risk and increase their resilience.                                                                                                                                                                    |
| Risk Management for Protection Programs and Activities | <b>Mission Area:</b> Protection<br>Identify, assess, and prioritize risks to inform Protection activities, countermeasures, and investments.                                                                                                                                                                                                                                               |
| Screening, Search, and Detection                       | <b>Mission Areas:</b> Prevention, Protection<br>Identify, discover, or locate threats and/or hazards through active and passive surveillance and search procedures. This may include the use of systematic examinations and assessments, bio surveillance, sensor technologies, or physical investigation and intelligence.                                                                |
| Supply Chain Integrity and Security                    | <b>Mission Area:</b> Protection<br>Strengthen the security and resilience of the supply chain.                                                                                                                                                                                                                                                                                             |
| Threats and Hazards Identification                     | <b>Mission Area:</b> Mitigation<br>Identify the threats and hazards that occur in the geographic area; determine the frequency and magnitude; and incorporate this into analysis and planning processes to clearly understand the needs of a community or entity.                                                                                                                          |

### Core Capabilities in Response and Recovery:

Core Capabilities can also refer to key functions required to stabilize incidents. Some of the key Core Capabilities include Public Awareness, Warnings and Mass Alerts, Damage Assessment, Debris Removal, Casualty Care and Transport, Evacuations, etc. In the past, the Hazard Analysis process would tend to isolate types of incidents from each other, in order to assess data relating to specific event types. This is okay in analysis, but does not correspond necessarily to reality on the ground during an actual incident. Essentially, these Core Capabilities are functional, and can be applied to general incident response regardless of specific event type. For instance, Debris Removal is debris removal, and if there is widespread destruction, debris removal cannot wait for someone to define whether that damage resulted from “straight-line winds” or an actual tornado (especially if the event happens at night). The distinction simply isn’t important to the immediate task at hand. Likewise for Damage Assessment and overall Communications, and almost all other critical functions. It will speed the response and recovery if organizations and personnel know their “lane” well in advance of events, and if we can streamline communicating status of those essential functions on the fly, we can do even better, faster. And that is also where and how identifying the Core Capabilities within Community Lifelines construct *before* an incident can pay real dividends in community resilience, as seen above in the planning and prevention (*Pre-Disaster Mitigation*) phases.

### **Community Lifelines:**

Quite simply, Community Lifelines (as briefly defined above) are the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. Lifelines are the integrated network of assets, services, and capabilities that are used day-to-day to support the recurring needs of the community. When disrupted, they require decisive intervention (e.g., rapid service re-establishment or employment of contingency response solutions) in order to stabilize the incident and move the community towards recovery.

At the national level, FEMA's operational structure incorporates Emergency Support Functions (ESFs), Core Capabilities, and Community Lifelines in terms of **means**, **ways**, and **ends**:

- **Means:** ESFs and other organizational structures—the *means*—are the way they organize across departments and agencies, community organizations, and industry to enhance coordination and integration to deliver the Response Core Capabilities
- **Ways:** Response Core Capabilities describe the grouping of response actions—the *ways*—that can be taken to stabilize and re-establish the lifelines. FEMA executes Lines of Effort (LOE) to operationalize the Core Capabilities (the ways) for response and recovery planning and operations.
- **Ends:** Lifelines describe the critical services within a community that must be stabilized or re-established—the *ends*—to alleviate threats to life and property.

## Community Lifelines Sectors and Sub-Sectors

In addition to the 7 main-level Community Lifeline sectors, they are broken down into subsectors, as seen in the graph below.



Since Kalamazoo County does not have the ESFs formalized in our Disaster Committee (KCDC) or Emergency Operations Center (EOC) structures, and given that this is our initial foray into this realignment, we will organize these two entities based on *only* Core Capabilities and Community Lifelines. For instance, where the FEMA ESF#2 designation would signify “Communications” as a specific personnel or organizational position, for our purposes, we would assign committee members whose primary function(s) or capabilities within their organization fell within that Community Lifelines sector, and then further define their role(s) into the corresponding Core Capabilities as required in response to specific events or incidents.

The Planning Team has identified and highlighted the following core capabilities the community must utilize to prevent, prepare for, respond to, and recover from disaster events. Some of these capabilities (like Planning, Zoning, and Code Enforcement), can of themselves help to mitigate exposure to hazards primarily *prior to* events or incidents. Others, like Casualty Care or HazMat Response, can lead to reduction in time and/or cost to recover from incidents, and if enhanced can serve to mitigate effects, prevent cascading, and accelerate incident stabilization and recovery.

- Public Awareness (pre-disaster)
- Planning/Zoning/Code Enforcement
- Warning Systems
- Emergency Responder and Public Communications (during event, response, and recovery)
- Evacuation and Sheltering
- Damage Assessment
- Debris Management
- Mass Casualty Care and Transport
- Survivor Assistance (short and long-term)



A breakdown of the individual Core Capabilities and Community Lifelines construct as we envision them when applied to Kalamazoo County follows:

### Core Capabilities and Community Lifelines: SAFETY AND SECURITY



The Community Lifeline sector for Safety and Security includes sub-sectors for:

- o **Law Enforcement/Security**
- o **Search and Rescue**
- o **Fire Services**
- o **Government Services**
- o **Community Safety**

#### Core Capabilities:

The most obvious capabilities within the Safety and Security sector are those we see every day, namely keeping the peace (Law Enforcement/Security), search and rescue, and firefighting. Those functions have clear associations with response to events or incidents. Less obvious are the day-to-day functions this sector performs for the community that can be taken for granted *because* they are so routine. Government services like administration, tax collection, elections, public works, traffic control, and fire or building safety inspections.

#### Example of Stabilization Targets:

“Threats to life safety are no longer a concern for all response personnel and impacted communities. Government essential functions, including executive leadership, are operational. Sufficient search and rescue assets are on-scene to assist all survivors. Sufficient fire resources are available to support fire suppression efforts.”

#### Possible Capabilities Enhancements/Mitigation Considerations:

- **Law Enforcement/Security:** With an increased scrutiny of the public face of Public Safety, particularly of Law Enforcement, the need for enhanced and ongoing training in non-traditional procedures will be an issue for these agencies.
- **Search and Rescue:** In recent years, Community Emergency Response Teams CERT programs have suffered from a lack of direction and active volunteerism. These teams used to be a backbone of large-scale search and rescue at the local level across the country. Kalamazoo County is no exception. Fortunately, a number of advances in technology can greatly enhance traditional capability. These include using Social Media as a “crowd-sourced” force-multiplier and utilizing Unmanned Aerial Systems (UASs or “drones”) for wide area-SAR in almost any conditions, anywhere. Michigan also has a Volunteer Defense Force, deployable at the behest of the Governor, bringing a trained, organized cadre of members who can assist in various functions, including SAR.
- **Fire Services:** UASs are also being increasingly utilized for structure and wildland firefighting, and other technologies are being implemented constantly. Enhanced dispatch capabilities, infrared sensors, advanced training across departments, and other efforts serve to mitigate effects of fires.
- **Government Services:** Essential government functions like elections, tax collection, schools, maintenance of public records, etc., can be exposed to unique hazards, and comprehensive awareness and countermeasure programs are essential. Information Technology and network security initiatives can be a crucial task.
- **Community Safety:** This is where general items like flood control and similar, wider hazard-class activities reside. Planning and Zoning, building code enforcement, Mutual Aid agreements are all important in this subsector.

## Core Capabilities and Community Lifelines: FOOD, WATER, AND SHELTER



The Community Lifeline sector for Food, Water, and Shelter includes sub-sectors for:

- o **Food**
- o **Water**
- o **Shelter**
- o **Agriculture**

### Core Capabilities:

This lifeline covers not only traditional feeding and hydration services, which are routinely paired with sheltering (hence the grouping of components in this lifeline), but it also includes water and agricultural infrastructures that are closely tied. The cascading effects of disaster events can be felt heavily in this sector, in sometimes unforeseen ways (see CoVID-19 narrative in Chapter 4-Hazard Analysis).

### Example of Stabilization Targets:

“All survivors, their pets, and service animals have access to food, water, and sanitation. Sheltering (including reception, capacity, and wrap-around services) is supporting the displaced population. Sufficient resources are in place to sustain agricultural requirements.”

### Possible Capabilities Enhancements/Mitigation Considerations:

- **Food:** While generally robust, modern food infrastructure can be vulnerable in cascading events, especially in wider-impact events. Disruptions in harvests, processing, power, and transportation can stress the supply chain, which is also vulnerable to malicious actions and technology failures. As we saw with CoVID-19 in 2020, supply chains can be impacted by pandemics as well. Isolation and quarantine protocols can lead to widespread shutdowns at key points in the processing and delivery cycles.
- **Water:** Beyond population hydration, the water subsector encompasses water used for agriculture, relief drinking water provided directly (see PFAS discussion in Chapter 4), as well as wastewater treatment. Often overlooked in disaster planning, wastewater infrastructure failures can be exponentially more impactful on a community than almost any other lifeline. System failures lasting beyond even several hours can lead to serious risk to the health and well-being of the community.
- **Shelter:** In Kalamazoo County, the onus for disaster and emergency sheltering has traditionally been taken up by the local American Red Cross. While that has proved successful and continues to be the case, greater emphasis has been placed on assuring inclusion of consideration for “at-risk” populations, including those with functional needs, those who do not speak English as their primary language, and other marginalized populations. These groups face more difficulty in general during and after events, and their unique shelter needs must be addressed in order for any plan to be considered as a “whole-community” effort. Fortunately, the county has made great strides in opening up communications and outreach with these communities. While much more needs to be done, one of the key moves has been the formalization of a Volunteer Organizations Assisting in Disaster (VOAD) structure. The county’s “2-1-1” resource is a key component of this as it provides a framework for community members to reach a centralized clearinghouse for access to various organizations with different skillsets and capabilities. During the CoVID-19 crisis throughout 2020 and beyond, our VOAD proved invaluable in providing direct relief to all residents, striving for equity in service delivery across all demographics. Continuing to support this effort should be a priority.
- **Agriculture:** When there is a disaster, such as a major flood, and food is at risk, it is too late to start the mitigation actions that would help local farmers. Communities need to incorporate an agriculture perspective in their current hazard mitigation planning to add protections now, before the next disaster. Agriculture advocacy organizations, farmers, and industry experts can be engaged during the Hazard Mitigation Plan process to share their insights on vital local crops and resiliency challenges.

## Core Capabilities and Community Lifelines: Health and Medical Lifeline



The Community Lifeline sector for Health and Medical includes sub-sectors for:

- o **Medical Care**
- o **Patient Movement**
- o **Public Health**
- o **Fatality Management**
- o **Medical Supply Chain**

### Core Capabilities:

This sector and its subsectors form a backbone of any community, in good times and during disaster events. Having resiliency built in to the infrastructure and systems within the Health and Medical sector is critical to all phases of disaster planning. The county as a whole has responded pretty well to shortcomings and deficiencies when identified, both through organic growth as well as in direct response to actual events.

### Example of Stabilization Targets:

“All survivors, their pets, and service animals have access to required medical and veterinary care. Emergency medical systems are capable of managing patient movement requirement. Public health services are accessible to all survivors. Sufficient temporary fatality management support is in place to meet processing demand. Medical supply chain capable of adequately resupplying medical care providers.”

### Possible Capabilities Enhancements/Mitigation Considerations:

**Medical Care:** Kalamazoo County is very fortunate in this subsector, having two regional hospitals within the city of Kalamazoo, as well as a robust and evolving hospital-associated network of community clinics and specialty practice centers across the county. Both hospitals (Ascension/Borgess and Bronson Methodist) are well equipped and staffed, and both have Trauma Center- level emergency departments (Bronson a Level I, and Ascension Level II). Western Michigan University includes the Homer Stryker School of Medicine, accepting its first students in 2014. The School of Medicine (WMed) includes disaster medicine training as part of requisite core instructional programming, which means our area has a cadre of trained personnel that can be called upon in times of emergency. Kalamazoo also serves as the hub for the 5<sup>th</sup> District Medical Response Coalition (5DMRC). This unique regional effort provides multi-disciplinary, cross-jurisdictional planning, training, exercising, and response. The 5DMRC includes, the region's hospitals, major EMS agencies, public health departments, emergency management programs, long term and specialty care facilities, law enforcement, and other stakeholders.

**Patient Movement:** The Kalamazoo County EMS system is a high-performance, single-tier Advanced Life Support system with robust countywide Basic Life Support first responders. The county is served by five ambulance services covering designated areas of the county and 16 first-responder agencies provided through fire and public safety agencies. The Kalamazoo County Medical Control Authority coordinates and oversees the EMS system and is physically housed within WMed's Department of Emergency Medicine. Additionally, the county is also served by the Region's air medical service provider, West Michigan AirCare, providing airborne patient transport service. Mass casualty transport and support can also be obtained via the county's Metro Transit System.

**Public Health:** Kalamazoo County Health and Community Services Department is the primary public health agency in the county, committed to providing equitable, culturally competent care to all individuals served, regardless of race, age, sex, color, national origin, religion, height, weight, marital status, political affiliation, sexual orientation, gender identity, or disability.

**Fatality Management:** Past events have occasionally strained the county's limited capacity for fatality management. The county now hosts a regional morgue at WMed with greatly expanded capacity, and an on-site Medical Examiner's office.

**Medical Supply Chain:** This subsector is supported by 5<sup>th</sup> District Medical Response Coalition, with additional state and federal resources available if needed (see Pandemic hazard discussion in Chapter 4).

## **Core Capabilities and Community Lifelines: Energy**

The Community Lifeline sector for Energy includes sub-sectors for:



- **Power**
- **Fuel**

### **Core Capabilities:**

This sector and its subsectors are key components of critical infrastructure, vital in all phases of disaster planning and emergency management. The delivery of reliable utility power and the provision of fuel literally enable all other activities. With increasing interconnectivity, both in the power grid and with fuel supply chain, these systems and their capabilities provide the energy that drives all facilities and support functions, from hospitals and wastewater treatment to fueling ambulances, farm machinery, and the personal vehicles the community relies upon daily to commute to and from work, obtain food, and perform other, routine activities vital to the overall economic and social well-being of the population writ large.

### **Example of Stabilization Targets:**

“Generators are providing temporary emergency power at critical facilities necessary to stabilize other lifelines. Fuel distribution is available for responders. Sufficient fuel distribution is available for survivors, including to support individuals dependent on power for life-sustaining medical care.”

### **Possible Capabilities Enhancements/Mitigation Considerations:**

**Power:** Kalamazoo County has a robust utility infrastructure, with electric power generation capabilities in commercial, industrial, and utility plants utilizing natural gas, hydroelectric, and solar power fuel sources. The primary utility company is Consumers Energy (electricity and natural gas distribution), with some areas of the county (primarily far south and west) served by the Indiana Michigan Power Company (electricity only). Utility power and distribution can be adversely affected by several types of events that pose a risk to Kalamazoo County and surrounding areas. Of local concern would be infrastructure exposure to damage from weather-related events, such as ice storms or wind damage (tornadic/cyclonic or straight-line winds). On a wider scale, concerns exist as to the resiliency of the distribution system in the event of a regional or long-term power outage. Several possible mitigation actions have been discussed, with the concept of “microgrids” gaining the most traction. Having agreements in place to “back-power” the utility with large commercial facilities that have standby generators in place is another viable concept.

**Fuel:** The fuel subsector includes storage, pipelines, refineries, and fuel distribution. While Kalamazoo County does have a major petroleum pipeline that traverses the county from southwest to east-central, that pipeline does not have a terminal in the county. The primary infrastructure for gasoline and diesel fuel delivery is via tanker truck. A sizable portion of county residents (primarily rural and semi-rural) rely on propane for heating, and this commodity is also delivered by tanker truck and pumped into storage tanks on-site for residential or commercial uses. Providing a mechanism for this distribution system to operate during power outages is a key consideration for mitigation activities. Ensuring gas stations and other pumping operations have ready connections and/or integrated backup generator power available is just one possible avenue to augment community resiliency in the sector.

## **Core Capabilities and Community Lifelines: Communications Sector**

The Community Lifeline sector for Communications includes sub-sectors for:



- o Infrastructure
- o Alerts, Warnings, and Messages
- o 911 and Dispatch
- o Responder Communications
- o Financial Services

### **Core Capabilities:**

Kalamazoo County has made great strides in its communications capabilities, primarily through the long-awaited establishment of the Kalamazoo County Consolidated Dispatch Authority (KCCDA) in 2014. In addition to the creation of a single point-of-dispatch for all emergency services agencies in the county. The county also has a solid amateur radio group ("Radio Amateur Civil Emergency Service," or "RACES, a protocol created by the Federal Emergency Management Agency (FEMA) and the Federal **Communications** Commission) and the Kalamazoo County Office of Emergency Management liberally embraces technological advances in emergency communications capabilities.

### **Example of Stabilization Targets:**

"Survivors have access to commercial communications infrastructure to contact or be contacted by emergency services. Land mobile radio communications network is operational. Public safety answering points are available to the public. Survivors have access to financial services."

### **Possible Capabilities Enhancements/Mitigation Considerations:**

**Infrastructure:** The county has a robust communications profile, served by traditional copper POTS lines (Plain Old Telephone Systems), cellular, cable, satellite, and fiber-optic frameworks. All of these systems are interconnected to some degree and rely on overall IT for command and control functions. Communications towers and other infrastructure need to be reinforced or backed up by alternate means of supporting signals and supplying power to switching and relay gear nodes.

**Alerts, Warnings, and Messages:** The general public alert system in the past relied mostly on outdoor pole-mounted sirens. These are of limited use, and mostly for people outdoors. They also come with high maintenance costs and a lack of consistency in activation protocols and mechanisms. The advent of the "smartphone" era has completely altered the landscape of public communications as a whole. The KCCDA is charged with public warning and alerts, and is developing and enhancing its capabilities in this regard by leveraging technological innovations, especially in the digital realm. Some of the public alert capabilities being sought are:

1. Geo-targeted reverse 911: Issue voice alerts to residents and businesses through map-based selection.
2. IPAWS Alerts: Reach all the cellphones users, including unregistered visitors, in the impact area through Wireless Emergency Alerts (WEA). Broadcast EAS alerts through Radio and TV networks.
3. Subscribed Alerts: Notify public subscribers through their preferred contact method, including text, mobile app, email or voice call.
4. Social Media: Post the latest updates to social media sites for the community to view.

**911 and Dispatch:** The KCCDA takes all 911 emergency calls and dispatches police, fire, EMS, and other agencies as needed for emergency response including County of Kalamazoo, the City of Kalamazoo, the City of Portage, the Charter Township of Kalamazoo, and Western Michigan University, as well as all outlying municipalities in the county. The KCCDA has a dynamic Strategic Business Plan and constantly seeks improvement and innovation.

**Responder Communications:** Tremendous progress has been made in Kalamazoo County with regards to interoperability of radio communications between First Responder agencies, with the KCCDA forming the backbone of that initiative.

**Financial Services:** Having "Finance" in the Communications Sector may seem inconsistent, but most financial transactions these days are digital, and thus the banking sector relies heavily on the resiliency of communications infrastructure.

## **Core Capabilities and Community Lifelines: Transportation**



The Community Lifeline sector for Transportation includes sub-sectors for:

- o Highway/Roadway Motor Vehicle
- o Mass Transit
- o Railway
- o Aviation
- o Maritime

### **Core Capabilities:**

This sector and its subsectors cover all modes of transport, both day-to-day as well as during incidents. The movement of goods, services, personnel, and equipment is a vital component of response and recovery.

Keeping these transportation systems running smoothly during times of crisis or disaster can mean the difference between limiting damage and casualties and having event effects cascade or spiral out of control.

Approaching preparedness and resiliency as a pre-disaster policy in the Transportation Sector is a high-return investment, despite relatively high costs associated with comprehensive maintenance programs.

### **Example of Stabilization Targets:**

“Multimodal routes (air, rail, road, port) are clear of debris and accessible by normal or alternate means.”

### **Possible Capabilities Enhancements/Mitigation Considerations:**

**Highway/Roadway Motor Vehicle:** Kalamazoo County has two major highways bisecting the county North/South (US Hwy-131) and East/West (Interstate 94). Various agencies are responsible for roadway maintenance, including the Road Commission of Kalamazoo County (RCKC), the Michigan Department of Transportation (MiDOT), City of Kalamazoo Public Services, and many various local public works departments. Their responsibilities include snow and debris removal, right-of-way maintenance, construction, and roadbed repair. Robust damage assessment and debris removal capabilities are a constant challenge, with harsh winters putting a strain on all aspects of the system.

**Mass Transit:** “Metro” is the name of the mass transit/”mobility management” system in Kalamazoo County, administered by the Central County and Kalamazoo County Transit Authority(s). This system serves the entire county with a variety of sub-systems. Metro is dedicated to providing inclusive, equitable transport solutions to the Whole Community, especially those with functional needs and other “at-risk” populations. They are often called upon to provide support for major incidents, including temporary heated refuge and evacuation transportation.

**Railway:** The County is crisscrossed by a number of railways. Primary passenger rail is served by Amtrak, with a station in the City of Kalamazoo with direct route traffic to Detroit and Chicago. Freight rail is served by the Canadian National, Norfolk Southern, and Grand Elk railroads. Thus exists a tremendous capacity to move goods or people into or out of the county in fairly rapid fashion.

**Aviation:** The Kalamazoo/Battle Creek International Airport (AZO) provides major carrier service to and from Kalamazoo, with primary connections in Chicago and Detroit, as well as Fixed Base of Operations/General Aviation services. A number of smaller, private General Aviation airfields are also scattered about the area. The W.K. Kellogg Airport in Battle Creek (BTL, in neighboring Calhoun County) can serve as a backup if AZO is unusable or if heavy-lift cargo planes requiring longer runways are needed. It is a joint military/civilian facility and the 3<sup>rd</sup>-busiest airport in Michigan.

**Maritime:** Kalamazoo County has no appreciable maritime infrastructure. Any mention of this subsector would be limited to water rescue and lakes and waterway Law Enforcement activities.



## Core Capabilities and Community Lifelines: Hazardous Materials

The Community Lifeline sector for Hazardous Materials includes sub-sectors for:



- o Facilities
- o HAZMAT, Pollutants, and Contaminants

### **Core Capabilities:**

This lifeline covers the management (including containment and removal) of all hazardous materials (Hazmat).

Kalamazoo County has a robust and dynamic Hazmat structure in place. One of the primary resources in the county (and a great example of mutual aid agreements and collaboration) is the Kalamazoo County Regional Hazmat Response Team.

The Team is comprised of members from several fire agencies in the county, with all local jurisdictions subscribing monetary support. The Pfizer Corporation also maintains its own Hazmat Team within their on-site Fire Department.

The County also maintains a Local Emergency Planning Committee (LEPC). Established under the Superfund Amendments and Reauthorization Act (SARA) of 1986. A major SARA provision is Title III (the Emergency Planning and Community Right-To-Know Act, also known as SARA Title III), which establishes hazardous material emergency planning, reporting, and training requirements for federal, state and local governments, and private industry. The federal Environmental Protection Agency (EPA) has direct jurisdictional authority, with the Department of Homeland Security handling chemical vulnerabilities enforcement at the federal level. At the state level, the SARA Title III program is jointly administered and implemented by two state departments—the Michigan State Police Emergency Management and Homeland Security Division (MSP-EM/HSD), and the Michigan Department of Environment, Great Lakes and Energy (EGLE).

### **Example of Stabilization Targets:**

“All contaminated areas are identified and secure.”

### **Possible Capabilities Enhancements/Mitigation Considerations:**

**Facilities:** While known Hazmat facilities are identified and monitored through mandated reporting and inspections via Federal, State and Local (LEPC) mechanisms, emerging industries and technologies can create hazards where none existed before. Two examples of this are temporary, off-peak energy storage in large battery facilities, and the process by which now-legalized cannabis is processed into “essential oils” and other consumable products using highly flammable chemicals and gasses. These kinds of hazard profiles are emergent, and lack of information and experience can lead to catastrophic events (see *McMicken Explosion* and *Los Angeles Butane Honey Oil Explosion*). Continuous training and information exchange is necessary for First Responders to be able to recognize these hazards and react accordingly when faced with them.

**HAZMAT, Pollutants, and Contaminants:** Without clear direction available from early published resources on the Community Lifelines construct, the KCHMP Planning Team is treating this subsector as dealing with the *transport* of hazardous materials, and the attendant potential for accidental release. Mitigation activities should include enhanced Public Awareness, training, planning, and exercising on a continuous basis, as well as ongoing funding for equipment and personnel.



## Emergency Support Functions in the EOC Structure:

The following table shows a possible integration strategy for aligning the Emergency Operations Center staffing matrix with Community Lifelines and the FEMA-designated Emergency Support Functions (ESFs). Again, this is a preliminary working concept, and this structuring will likely see significant alteration and adaptation as it is implemented. Part of the overall strategy of the approach is to maintain flexibility, especially where resources and personnel may be limited and the EOC must be reactive to changing status during response and recovery.

| SECTOR                                                                              | SUB-SECTOR                                                                                                                                                                                                                                                                                                                                                                                                                             | PRIMARY ESFs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | EOC COMMAND SUITE ESFs                                                                                                                                                                                                                                          | EOC Command Slot |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
|    |   <br>            | <b>ESF #4 – Firefighting</b> <ul style="list-style-type: none"> <li>• Coordination of firefighting activities.</li> <li>• Support to wildland, rural, and urban firefighting operations.</li> </ul> <b>ESF #9 – Search and Rescue</b> <ul style="list-style-type: none"> <li>• Life-saving assistance. Search and rescue operations.</li> </ul> <b>ESF #13 – Public Safety and Security</b> <ul style="list-style-type: none"> <li>• Facility and resource security. Security planning and technical resource assistance.</li> <li>• Public safety and security support.</li> <li>• Support to access, traffic, and crowd control.</li> </ul> | <b>ESF #5 – Emergency Management</b><br>Coordination of incident management and response efforts.<br>Issuance of mission assignments.<br>Resource and human capital.<br>Incident action planning.<br>Financial management.                                      | Ops/IC           |
|    |  <br>                                                                                              | <b>ESF #6 – Mass Care, Emergency Assistance, Housing, and Human Services</b> <ul style="list-style-type: none"> <li>• Mass care. Emergency assistance.</li> <li>• Disaster housing. Human services.</li> </ul> <b>ESF #11 – Agriculture and Natural Resources</b> <ul style="list-style-type: none"> <li>• Nutrition assistance. Animal and plant disease and pest response.</li> <li>• Food safety and security.</li> <li>• Natural and cultural resources and historic properties protection and restoration.</li> <li>• Safety and well-being of household pets.</li> </ul>                                                                | <b>ESF #7 – Logistics Management and Resource Support</b><br>Comprehensive, national incident logistics planning, management, and sustainment capability<br>Resource support (facility space, office equipment and supplies, contracting services, etc.)        | Logs             |
|   |   <br>          | <b>ESF #6 – Mass Care, Emergency Assistance, Housing, and Human Services</b> <ul style="list-style-type: none"> <li>• Mass care.</li> <li>• Emergency assistance.</li> <li>• Disaster housing.</li> <li>• Human services.</li> </ul> <b>ESF #8 – Public Health and Medical Services</b> <ul style="list-style-type: none"> <li>• Public health, Medical, and Mental health services.</li> <li>• Mass fatality management.</li> </ul>                                                                                                                                                                                                          | <b>ESF #14 – Long-Term Community Recovery</b><br>Social and economic community impact assessment.<br>Long-term community recovery assistance to States, local governments, and the private sector.<br>Analysis and review of mitigation program implementation. | Plans            |
|  |                                                                                                                                                                                                                                                                  | <b>ESF #3 – Public Works and Engineering</b> <ul style="list-style-type: none"> <li>• Infrastructure protection and emergency repair.</li> <li>• Infrastructure restoration. Engineering services and construction management.</li> <li>• Emergency contracting support for life-saving and life-sustaining services.</li> </ul> <b>ESF #12 – Energy</b> <ul style="list-style-type: none"> <li>• Energy infrastructure assessment, repair, and restoration</li> <li>• Energy industry utilities coordination. Energy forecast.</li> </ul>                                                                                                    | <b>ESF #15 – External Affairs</b><br>Emergency public information and protective action guidance.<br>Media and community relations.<br>Congressional and international affairs.<br>Tribal and insular affairs.                                                  | PIO              |
|  |   <br>  | <b>ESF #2 – Communications</b> <ul style="list-style-type: none"> <li>• Coordination with telecommunications and information technology industries.</li> <li>• Restoration and repair of telecommunications infrastructure.</li> <li>• Protection, restoration, and sustainment of cyber and information technology resources.</li> <li>• Oversight of communications within incident management and response structures.</li> </ul>                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                 |                  |
|  |   <br>  | <b>ESF #1 – Transportation</b> <ul style="list-style-type: none"> <li>• Aviation/airspace management and control. Transportation safety.</li> <li>• Restoration/recovery of transportation infrastructure and movement restrictions.</li> <li>• Damage and impact assessment.</li> </ul>                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                 |                  |
|  |                                                                                                                                                                                                                                                                  | <b>ESF #10 – Oil and Hazardous Materials Response</b> <ul style="list-style-type: none"> <li>• Oil and hazardous materials (chemical, biological, radiological, etc.) response.</li> <li>• Environmental short- and long-term cleanup.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                 |                  |

## Chapter 4: Hazard Analysis

### INTRODUCTION

Kalamazoo County (and Michigan as a whole) is vulnerable to a wide range of natural, technological and human-caused hazards. Periodic disasters result from floods, tornadoes, winter storms, severe thunderstorms and other events, causing injuries and loss of life, disruption of services, economic impacts, and significant property damage. Such events often have lasting negative impacts on the affected communities. Major disasters have heightened the awareness of Michigan's vulnerability to such events, including the SARS-CoV-2/CoVID-19 Pandemic of 2020-2021. Other events in recent memory also serve as stark reminders, such as the Flint water emergency, the metropolitan Detroit floods of 2000 and 2014, the 2010 Enbridge oil spill, the several derecho wind events, the "Great Blackout" of 2003, annual severe thunderstorms in various locations, the ice storm and power outages of 2013, the 1987 crash of Northwest Airlines Flight 225 near Detroit Metro Airport, and the 1953 Flint tornado that killed 115 persons. Kalamazoo County has seen major-impact incidents of its own just in the years since the last version of this plan (2013). These include the discovery of groundwater contamination from legacy manufacturing residual chemicals (primarily 'per- and polyfluoroalkyl substances', a family of "forever" chemicals known as PFAS), a massive winter-weather-related traffic accident on Interstate 94, Kalamazoo River flooding, a mass shooting, civil disturbances and rioting, and a mass-casualty traffic crash involving the deaths of 5 bicyclists and the serious wounding of several more. The area also experienced an historical rise in water-table levels that resulted in flooding and drainage issues that will impact property and infrastructure for years to come.

Hazard analysis is a key component of the hazard mitigation planning process. Through the identification and assessment of known hazards that may affect our community, we can better align our priorities, focus our resources, enhance our capabilities, and identify opportunities to mitigate the potential effects of these hazards. When we apply the Core Capabilities concept to this effort, we thereby enhance our overall resiliency in the face of all hazards.

In this endeavor, the Planning Team for the Kalamazoo County Hazard Mitigation Plan relied on several primary sources for historical data. Chief among these were the National Oceanographic and Atmospheric Agency (NOAA) and their National Climatic Data Center database (NCDC). Also, at the national level, we leveraged the National Risk Index (NRI), which aggregates numerous data points into an interactive, highly responsive, and feature-rich online resource. The NRI is a new online mapping application from FEMA that identifies communities most at risk to 18 natural hazards. This application visualizes natural hazard risk metrics and includes data about expected annual losses, social vulnerabilities and community resilience.

The planning team also made extensive use of the 2019 State of Michigan Hazard Mitigation Plan Update (including a supplement covering Technological and Human-caused risks). While broader in scope by necessity, the MHMP is a tremendous source (see the entire plan at: [https://www.michigan.gov/msp/0,4643,7-123-72297\\_60152\\_69727\\_73631---,00.html](https://www.michigan.gov/msp/0,4643,7-123-72297_60152_69727_73631---,00.html)), and was essential to our efforts. Of course, the team also reviewed the previous (2013) version of the Kalamazoo County HMP, in addition to consulting local subject matter experts and many county agencies and organizations. A survey and request for narrative input was also extended to the 24 local units of government in the county (civil divisions). Those who saw differences or needed to make additions to the county-level hazard rankings specific to their communities responded accordingly. Those survey responses are included as an Annex to the plan, so they can be accessed separately as necessary. This is an ongoing process as we had so many newly participating jurisdictions.

It is important to remember that many of our natural hazard risks are seasonal, and there can be a level of nuance required to properly address some of the possible exposures. For instance, although light snow sometimes falls during warmer months and other unusual events do sometimes occur, many hazards are strongly associated with particular times of year and should encourage patterns of preparedness to occur on an annual cycle. Seasonal hazards in Michigan's Southern Lower Peninsula (Region 3 in the MHA) generally follow this annual pattern:

**March:** Final month for the highest-risk period involving *seasonal* influenza epidemics.

**April:** Winter risk season (involving significant risk of extreme cold, snowstorms, blizzards, and ice/sleet storms) ends in the Lower Peninsula.

**May:** Winter risk season ends in the Upper Peninsula; non-winter risk season begins in the Lower Peninsula.

**Late May:** Non-winter risk season begins in the Upper Peninsula (involving significant risk of extreme heat events, severe thunderstorms, lightning, hail, tornadoes, and wildfires).

**Early September:** End of the non-winter risk season in the Upper Peninsula.

**Late September:** Winter risk season begins in the Upper Peninsula, end of non-winter risk season in most of the Lower Peninsula.

**Early October:** End of non-winter risk season in the southernmost counties of the Lower Peninsula.

**October:** Start of the highest-risk period for influenza epidemics or pandemics.

**Early November:** Winter risk season begins in the Northern Lower Peninsula.

**Late November:** Winter risk season begins in the Southern Lower Peninsula.

Kalamazoo County has a very large agricultural economic base, with about 40% of land use (almost 150,000 acres) devoted to agriculture, and extreme climate events seem to be increasing in frequency. This can skew any attempt at hard analysis. Apart from officially-defined drought events, unusually dry *or* wet weather periods, if they occur at the wrong time for various crops, can be devastating to this sector of the economy. These periods of unusual weather might not technically qualify as ‘drought’ or ‘flood’ events, but they can be extremely costly in the short-term. While the US Department of Agriculture can and does have a separate authority to make county-level disaster *designations* (as opposed to Presidential or Executive *declarations*), the relief provided is mainly in the form of recovery loans made available to agricultural producers after the fact. Below is a recent example to illustrate this point.

*From USDA Farm Watch newsletter:* “WASHINGTON, March 4, 2020 – Agriculture Secretary Sonny Perdue designated Kalamazoo County, Michigan, as a primary natural disaster area. Producers who suffered losses due to excessive rain that occurred March 9, 2019, through Nov. 4, 2019, may be eligible for U.S. Department of Agriculture (USDA) Farm Service Agency (FSA) [emergency loans](#). This natural disaster designation allows FSA to extend much-needed emergency credit to producers recovering from natural disasters. Emergency loans can be used to meet various recovery needs including the replacement of essential items such as equipment or livestock, reorganization of a farming operation or the refinance of certain debts.”

Mitigation actions for these events can include the continuing adoption of irrigation systems, and for some crops, the expansion of ‘starting’ early plantings in greenhouses or covered-row systems. Mitigation actions taken to address other risk categories may have additional benefits that cannot be reliably calculated. In this example, enhancing drainage and floodplain management might also serve to reduce the impact on outlier weather events in ways that aren’t readily obvious, but can pay long-term dividends.

The Planning Team ranked the county’s hazards, and our narrative that follows will itemize those ranking numerically for reference, taking Natural, Technological, and Human-caused hazards in turn. However, 2020 was such a unique and impactful year that to give proper perspective, we will start by outlining 2 major events that will likely shape future analysis for many years to come. The “CoVID-19” Pandemic, and the incidents of Civil Unrest and rioting that rocked the nation and the world in 2020 had profound local impacts as well, but neither were previously high in probability rankings, so they were not prominent in our analysis until they occurred and affected our community. They both deserve description here.

## “CoVID-19” Pandemic Response:

In early January of 2020, a viral epidemic, originating in Chinese city of Wuhan (Central China) began to be identified in other countries around the world. The World Health Organization (WHO) declared a global pandemic on March 11, 2020. States of Emergency and Disaster declarations followed at the national and state level, with Michigan’s governor declaring a statewide State of Emergency (SOE) on March 10, under Executive Order 2020-04.

The virus behind the pandemic was a Severe Acute Respiratory Syndrome (SARS), similar to previous epidemic viruses like the “Spanish Flu” of the early 20<sup>th</sup> Century and subsequent outbreaks in the latter part of the century. The disease this variant caused to present in the human population worldwide became the common name. Originally named as “Novel Coronavirus- 2019”, it was soon shortened in common parlance as “COVID-19”.

The SOEs and subsequent shut-down and stay-home orders issued by the Governor (and amended and extended repeatedly) themselves had a tremendous impact on local economies which cannot be underestimated, and which may exceed the impact of the virus itself. The socio-economic ramifications include an exacerbation of criminal activity, domestic violence, suicide, and civil unrest. These carry-on effects should be included in future risk/hazard assessment and prioritization. Impacts are also felt in vertical sectors of the economy not previously foreseen in detail, including pressure and disruption of the food supply chain (particularly pertaining to animal protein). An additional unforeseen carry-on is a deterioration of quality of care in long-term care facilities. Restrictions on visitation and access to these facilities has meant that volunteers and family members who normally support patients in various ways were forbidden from entering the buildings, which put tremendous stress on staff and systems. Also, staffing levels themselves were negatively affected in various ways. Many Long-Term Care Facilities rely heavily on nursing and other medical students to fill staff positions. Many of these people became disillusioned with the profession as a whole because of the stresses and morale problems that ensued. There was some opposing effect as workers locked out of other service-industry jobs entered the field, but longer-term outlook is unknown.

Additionally, data gathering and public information dissemination was wholly inadequate at the Federal, State, and Local levels. See *Report: Tracking CoVID-19 in the United States*, available at <https://preventepidemics.org/>. Key performance and reportable statistics were not included on most state CoVID information dashboards, and this has contributed to public confusion, which leads directly to mistrust and poor compliance rates for restrictive measures. In the future the SOM should align its dashboard for reporting pandemic data with the recommendations of the WHO and CDC. This would allow for more precise, targeted response and more efficient and effective distribution of resources, thus reducing mortality, morbidity, spread, duration, and economic impact of future outbreaks. Downstream, all counties should also align their dashboards in like fashion.

Cascading effects were many, and not limited to:

- *Extended mandated restrictions leading to issues of:*
  - *Mental Health*
  - *Unemployment*
  - *Food Insecurity (As of 10/6/2020, FeedingAmerica.org estimates a shortfall nationwide of up to 8 Billion meals in the following 12 months, due to increased demand, supply chain issues, lack of volunteer personnel, etc.).*
  - *Blood supply shortages.*
  - *Excess deaths due to reluctance of patients to seek timely care, or restrictions imposed on elective care, etc.*

At the time of this writing, the CoVID pandemic continued to rage, although early vaccines had become available under Emergency Use Authorizations from the Food and Drug Administration in early December, including the first-approved in the United States, developed and manufactured by Pfizer Corporation (headquartered in Kalamazoo County). This fast-track to a vaccine(s) in under a year from disease identification was a result of a modern-day public/private collaborative “Manhattan Project” called “Operation Warp Speed”, which was initiated on January 13<sup>th</sup>, 2020, very early in the emerging pandemic at the behest of the Trump Administration. Warp Speed should prove to be a game-changer for future epidemic response methodology and indeed medical research and development in general going forward. If there is a bright spot to the pandemic, that is surely a candidate.

### Civil Unrest:

On May 25, 2020 a suspect died while in the custody of the Minneapolis (MN) Police Department. The arrest and the suspect's subsequent death were captured on video by a civilian bystander and immediately shared via social media. The fact that the suspect was black, and the arresting officer white exacerbated an already hostile environment in the city, which led to demonstrations and protests that soon found traction around the country and beyond. Kalamazoo was not spared as the demonstrations sometimes turned violent. During the overnight hours of June 1st-2<sup>nd</sup>, a demonstration that started in downtown Kalamazoo devolved from a loud, traffic-hindering protest into a melee that included assaults on police, window smashing, and some looting. Crowd management and scene security took several hours, and a local State of Emergency was declared early on the morning of June 2<sup>nd</sup>. The City of Kalamazoo also enacted a curfew on that day and the National Guard was summoned to assist with traffic control points established to enforce that curfew in the evening hours.

This event reflected a wider and deepening rift nationwide, with political animosity at a fever pitch, stoked by a divisive and contentious Presidential election cycle, and exacerbated by racial tensions and a virulent "anti-police" social climate. Many cities of all sizes in the country experienced similar periods of unease and escalating violence in the summer months. Portland, Oregon was especially hard-hit, with rioting and wanton destruction spanning more than 100 consecutive nights. Primary instigators were leftist-oriented and included strong impetus from a supposedly anti-fascist organization that also made organized appearances in Seattle, Minneapolis, Kenosha (Wisconsin), and many other cities. Over 87,000 specific protest events were reported across the country just in the period from May 25<sup>th</sup> to July 31<sup>st</sup>. Although the majority were non-violent in nature, over 600 devolved into violence, and well over 2,300 incidents of property damage and/or looting were recorded, according to a report from the Major Cities (police) Chief's Association (the MCCA). The MCCA only includes membership and reported numbers from 68 major metropolitan centers in the US and Canada. That report also documented over 2,000 instances of injuries to law enforcement personnel, destruction of almost 100 police vehicles, and over 600 arson attacks. Weapons used in these violent outbursts included rocks and bricks, commercial-grade fireworks, and firearms. Additional, irregular weapons and tactics utilized involved the use of lasers to blind officers and leaf-blowers to blow teargas away from protestors. The numbers cited in the MCCA report did not include non-member statistics, so the total numbers for the country are much, much higher.

In the early days of August 2020, social media rumors began to surface that a group known as "The Proud Boys" were planning a demonstration in downtown Kalamazoo for Saturday, the 15<sup>th</sup> of August. The Proud Boys self-identify as right-wing and had been branded a hate group by various watchdog groups and media outlets. A local counter-protest was organized, and the stage was set for a daytime confrontation on the streets of Kalamazoo. The two groups clashed and a massive police response from multiple agencies was required to restore order.



(Courtesy youtube.com)





(Courtesy wtol.com)

Although property damage was limited, the story was carried and amplified on national and international media. One of the greatest shortcomings of this incident was the lack of a solid, cohesive intelligence sharing infrastructure among city, state, and county law enforcement. A better collaborative information-gathering effort might have allowed for averting the violence or at least minimizing the reputational and psychological effects that are sure to be long-term.

### **Cyber:**

In addition to the CoVID pandemic and widespread civil disturbances, 2020 also saw an evolution in the exploitation of vulnerabilities to Information Technology infrastructure. The interdependence of industry, government, and society as a whole on telecommunications and technology has evolved quickly in the last decade. The advances are so pervasive, and so profound, that most of the population is unaware of just how precarious the whole system can be. This inherent exposure was laid bare by even more impressive advances made by cybercriminals and nation-state actors in exploiting vulnerabilities and defeating defenses.

Several high-profile cyber-attacks crippled critical industry sectors of all types, stymied financial transactions, resulted in the release of millions of personal identity data sets, and prompted some victimized organizations to pay massive ransoms. The idea of cascading and even catastrophic infrastructure failures resulting from such attacks (or as a result of technological glitches or natural disasters), can no longer be considered as theoretical.

## Overview of Primary Sources

### • National Risk Index (NRI):

The NRI scores relative community risk exposure to the effects of natural hazards down to census-tract level but is most useful to our efforts when viewed at the county level. The NRI rates Kalamazoo County as “Relatively Moderate” on their overall Risk Index as compared to other counties nationwide. This puts Kalamazoo County in the 83<sup>rd</sup> percentile nationally, which means only 17% of counties in the country score a higher risk rating. With just 5 other counties (Wayne, Macomb, Kent, and Roscommon) scoring the same or higher (out of 83 total), Kalamazoo County is in the 95<sup>th</sup> percentile for overall risk in the State of Michigan.

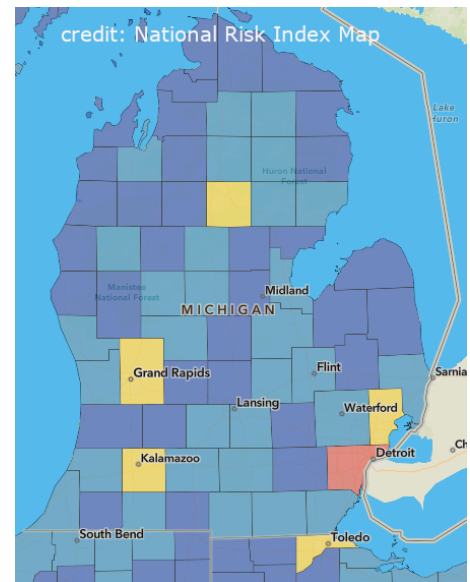
The NRI utilizes three wide metrics in a formula to establish their Risk Index rating and understanding that formula can help illuminate the county’s standing in relation to nationwide and statewide profiles. These metrics include “Expected Annual Loss” (or EAL, expressed in relative terms and also as a total dollar value), “Social Vulnerability”, and “Community Resilience”. Although Kalamazoo County scores as “Relatively Moderate” in EAL, it ranks at 90-plus in both National and State of Michigan percentiles. The county rates “Relatively Low” in Social Vulnerability, which measures the susceptibility of social groups to adverse impacts of natural hazards. The NRI correlates socio-economic factors to rate Social Vulnerability, including at-risk populations, poverty levels, and access to services. The final measurement is of Community Resilience, which is the ability of a given community “to prepare and plan for, absorb, recover from, and more successfully adapt to the impacts of natural hazards”. Mitigation Planning can play a key role in this metric, of course. The basic formula for establishing the Risk Index Rating, is: Expected Annual Loss multiplied by Social Vulnerability, then divided by Community Resilience. This may seem overly simplified at first glance, but the sheer number of data points, sources, and volume utilized makes this perhaps the most ambitious and comprehensive national assessment ever, and it is updated continuously, with input from numerous sources. That said, it is not comprehensive enough at the local level to be a sole source, and that is why the Planning Team also utilized other sources for added perspective in the analysis process. Major revisions to the NRI will occur in 2021 based on 2020 US (decennial) Census data, which is due to be finalized and released in the First Quarter of 2021.

The NRI uses two primary data sources, the National Weather Service Storm Events Database (as cited, but which is actually compiled and published by the National Oceanic and Atmospheric Administration via their National Centers for Environmental Information, or NCEI), and SHELdUS, which is the Spatial Hazard Events and Losses Database for the United States (a project of Arizona State University). They also use loss tables and other information from numerous sources, both public and private.

Natural Hazards are broadly defined by both the NWS/NOAA and the NRI as:

1. The occurrence of storms and other significant weather phenomena having sufficient intensity to cause loss of life, injuries, significant property damage, and/or disruption to commerce.
2. Rare, unusual, weather phenomena that generate media attention, such as snow flurries in South Florida or the San Diego coastal area; and
3. Other significant meteorological events, such as record maximum or minimum temperatures or precipitation that occur in connection with another event.

The 18 natural hazards the NRI includes are: Avalanche | Coastal Flooding | Cold Wave | Drought | Earthquake | Hail | Heat Wave | Hurricane | Ice Storm | Landslide | Lightning | Riverine Flooding | Strong Wind | Tornado | Tsunami | Volcanic Activity | Wildfire | Winter Weather.





Clearly, some of these hazards are not present or are so rare that they are not assessable for Kalamazoo County. If we eliminate those, we are left with relevant data and ratings for: Cold Wave | Drought | Hail | Ice Storm | Lightning | Riverine Flooding | Strong Wind | Tornado | Wildfire | Winter Weather. These align fairly well with our other primary and secondary sources' listings of Natural Hazards, with some differences. Pared-down versions of the NRI rating and scoring tables are included within the hazard analysis narrative below.

The NRI also sets criteria for hazard events to be deemed capable of causing damage in calculating frequency of events. An example of this is Subject Matter Experts weighing in on hail, and establishing a size threshold for hail at a diameter of .75 inch and greater being a 'damaging' event and therefore included in frequency calculations.

• **Michigan Hazard Mitigation Plan (MHMP) (Updated April 2019 edition):**

The MHMP was prepared by the Emergency Management and Homeland Security Division of the Michigan Department of State Police, and The Michigan Citizen-Community Emergency Response Coordinating Council, updating and reorganizing the 2014 version of the same plan. The KCHMP Planning Team generally followed the reorganization process utilized for this update, while concentrating on readability, concision, and layout. As such, we relied more heavily on the Michigan Hazard Analysis, which is the second of the two volumes comprising the 2019 MHMP, than the NRI, except for cost/expected annual loss data. The initial release of this updated plan in April of 2019, consisted entirely of the *Natural Hazards* components. A supplemental release of *Technological* and *Human-Caused* hazard analysis was obtained in December, and that analysis was included to the extent possible, given constraints of time and delays due to CoVID-19 pandemic response at all levels of Emergency Management throughout 2020.

The comprehensive and exacting nature of the State's MHMP and the accompanying Michigan Hazard Analysis makes it an ideal reference document for readers of the Kalamazoo County plan to explore issues of particular interest in more depth. In our Hazard Analysis narrative below, we cite the MHMP (with relevant page numbers) for each of the hazards we included.

**Natural Hazards (from NRI/MHMP):**

1. Cold Wave/Heat Wave
2. Drought
3. Hail
4. Ice Storm
5. Lightning
6. Riverine Flooding
7. Strong Wind
8. Tornado
9. Wildfire
10. Winter Weather/Storms

From NRI-with Risk Score rank:

### 1a- Cold Wave\* (short-term extremes)

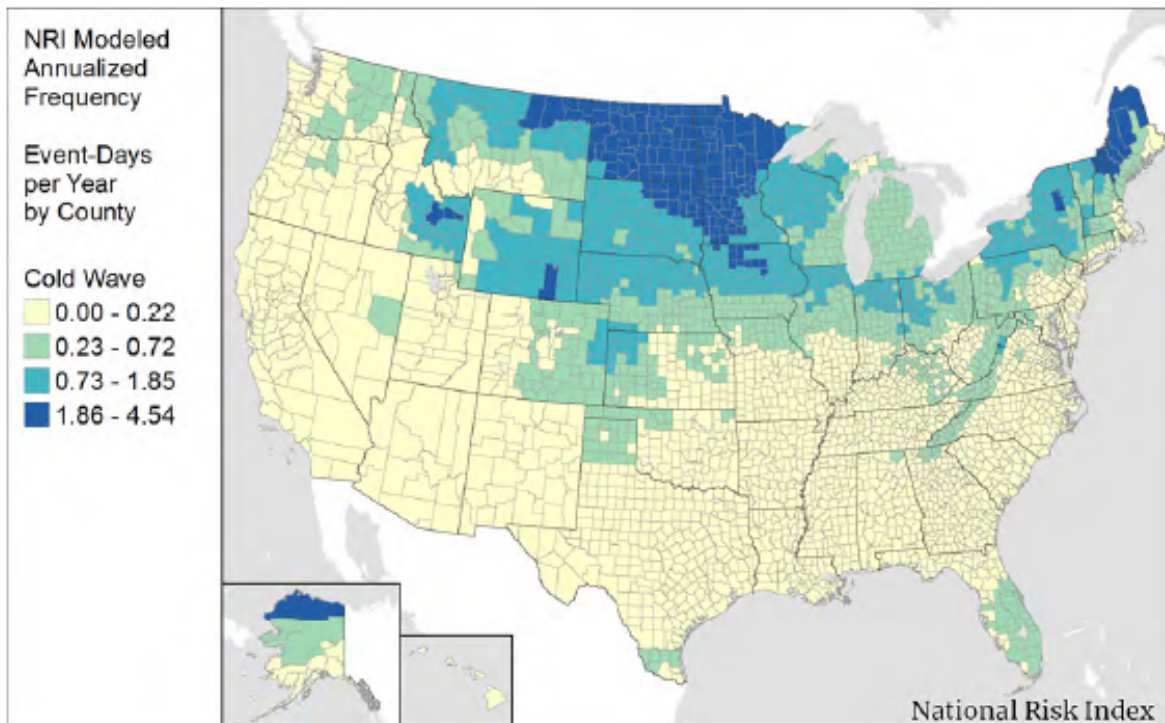
|                      |                     |
|----------------------|---------------------|
| Number of Events     | 4                   |
| Annualized Frequency | 0.33                |
| HLR - Overall Rating | Very Low            |
| EAL Score            | 37.28               |
| EAL Rating           | Relatively High     |
| Risk Score           | 26.05               |
| Risk Rating          | Relatively Moderate |

#### NRI Event Definition:

“A Cold Wave is a rapid fall in temperature within 24 hours and extreme low temperatures for an extended period. The temperatures classified as a Cold Wave are dependent on the location and defined by the local NWS weather forecast office.”

#### NRI Period of Record:

In the 1990s and early 2000s, the NWS’s system of recording watch, warnings, and advisories (WWA) made automated processing too difficult. So, in 2005, the Valid Time Extent Code (VTEC) system was implemented, which allowed for the easy automated parsing of alert data. Therefore, NWS weather events data were downloaded for 2005 through 2017. The date range utilized for the NRI is 11/12/2005 to 12/31/2017, so the period of record for which Cold Wave data are utilized is 12.14 years.



**Figure 33: Annualized Cold Wave Frequency by County**

## 1b- Heat Wave\* (short-term extremes)

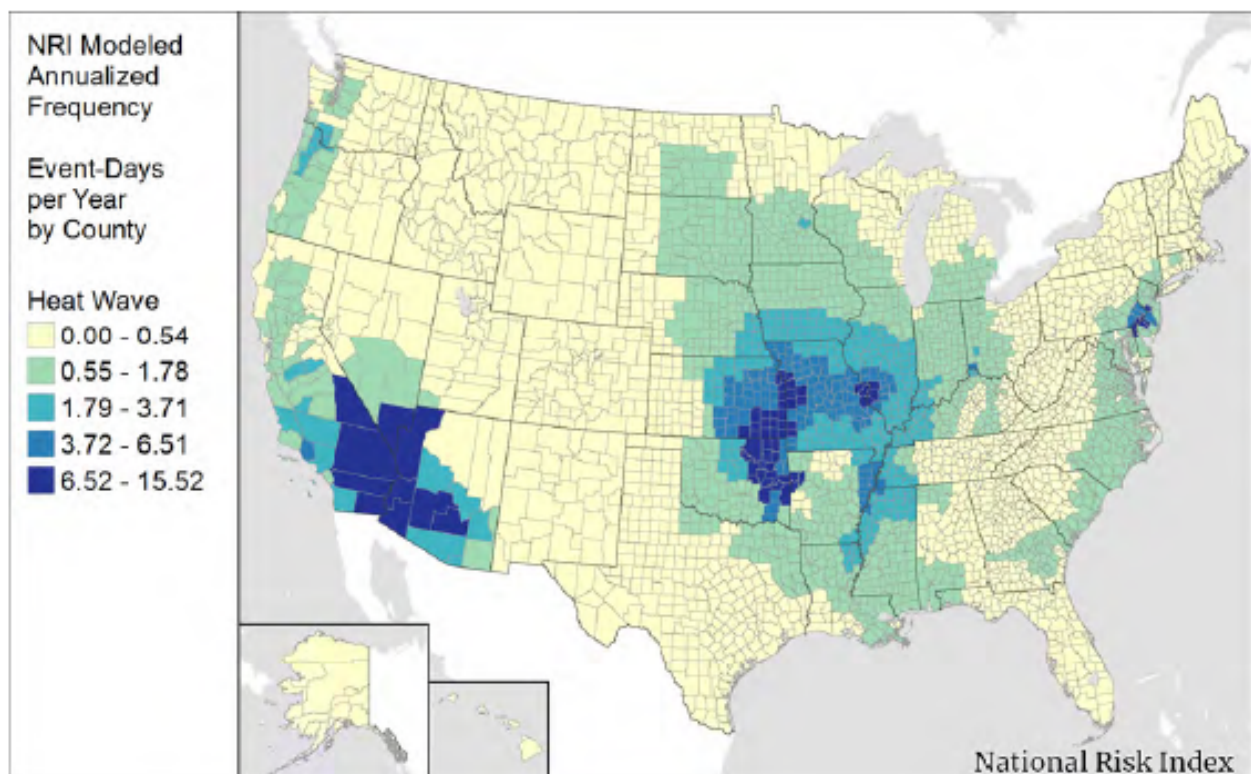
|                      |                     |
|----------------------|---------------------|
| Number of Events     | 8                   |
| Annualized Frequency | 0.66                |
| HLR - Overall Rating | Relatively Low      |
| EAL Score            | 24.22               |
| EAL Rating           | Relatively High     |
| Risk Score           | 13.95               |
| Risk Rating          | Relatively Moderate |

### NRI Event Definition:

**“A Heat Wave is a period of abnormally and uncomfortably hot and unusually humid weather typically lasting two or more days with temperatures outside the historical averages for a given area. The temperatures classified as a Heat Wave are dependent on the location and defined by the local NWS weather forecast office.”**

### NRI Period of Record:

In the 1990s and early 2000s, the NWS’s system of recording watch, warnings, and advisories (WWA) made automated processing too difficult. So, in 2005, the Valid Time Extent Code (VTEC) system was implemented, which allowed for the easy automated parsing of alert data. Therefore, NWS weather events data were downloaded for 2005 through 2017. The date range utilized for the NRI is 11/12/2005 to 12/31/2017, so the period of record for which Heat Wave data are utilized is 12.14 years.



**Figure 65: Annualized Heat Wave Frequency by County**

\*Cold Wave and Heat Wave were ranked together at #1 in our National Risk Index discussion due to the fact that they are both classed as “short-term weather extremes” and also their risk index ratings for Expected Annual Loss are both classed as “Relatively High”. Their mutual inclusion in our interpretation of the NRI dataset is also reinforced by general discussion and widespread awareness of climate change theory. The Planning Team felt that regardless of opinion and/or perception, if long-term trends point to more frequent occurrences of weather extremes (and short-term data does support that conclusion to some degree), then these outlier events should garner more weighted attention for contingency and mitigation planning purposes. Heat and cold waves are area-wide events, sparing no demographics, and those of extended duration can have

deleterious effects across numerous Community Lifelines, Core Capabilities, and adversely impact at-risk populations disproportionately as well

## 2- Hail

|                      |                 |
|----------------------|-----------------|
| Number of Events     | 337             |
| Annualized Frequency | 10.54           |
| HLR - Overall Rating | Relatively Low  |
| EAL Score            | 34.34           |
| EAL Rating           | Relatively High |
| Risk Score           | 25.12           |
| Risk Rating          | Relatively High |

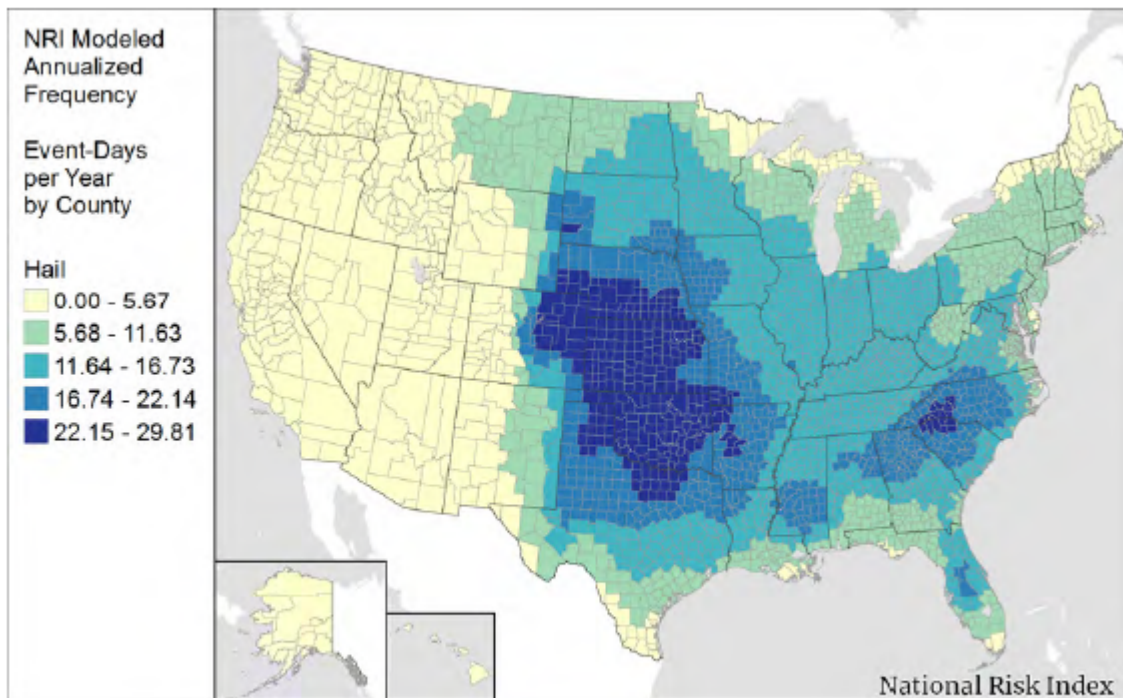
### NRI Event Definition:

“Hail is a form of precipitation that occurs during thunderstorms when raindrops, in extremely cold areas of the atmosphere, freeze into balls of ice before falling towards the earth’s surface.”

### Period of Record:

To use only the most accurate data, Hail data between 1/1/1986 and 12/31/2017 are analyzed, so the period of record for which Hail data are utilized is 32 years.

### Additional note:



**Figure 56: Annualized Hail Frequency by County**



### 3- Lightning

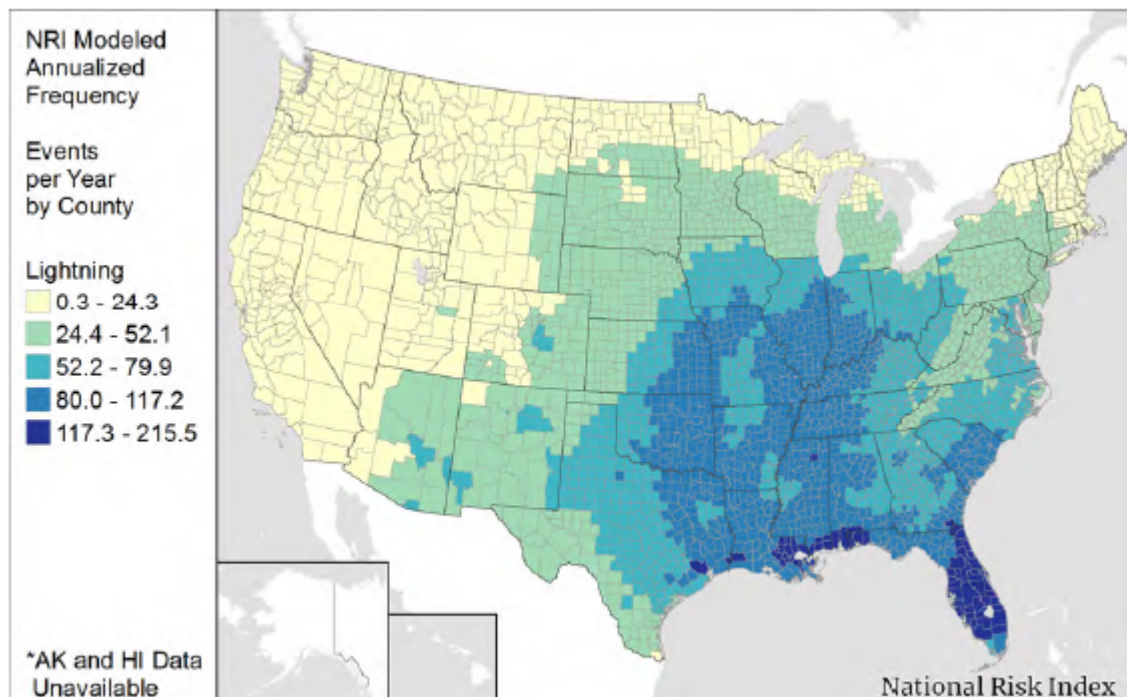
|                      |                     |
|----------------------|---------------------|
| Number of Events     | 1,195               |
| Annualized Frequency | 54.33               |
| HLR - Overall Rating | Very Low            |
| EAL Score            | 43.44               |
| EAL Rating           | Relatively High     |
| Risk Score           | 23.90               |
| Risk Rating          | Relatively Moderate |

#### NRI Event Definition:

“Lightning is a visible electrical discharge or spark of electricity in the atmosphere between clouds, the air, and/or the ground often produced by a thunderstorm.”

#### Period of Record:

To use only the most accurate data, Lightning strikes between 1/1/1991 and 12/31/2012 are analyzed, so the period of record for which Lightning data are utilized is 22 years.



**Figure 96: Annualized Lightning Frequency by County**

#### 4- Winter Weather

|                      |                     |
|----------------------|---------------------|
| Number of Events     | 84                  |
| Annualized Frequency | 6.92                |
| HLR - Overall Rating | Very Low            |
| EAL Score            | 27.76               |
| EAL Rating           | Relatively High     |
| Risk Score           | 18.86               |
| Risk Rating          | Relatively Moderate |

##### **NRI Event Definition:**

“Winter Weather consists of winter storm events in which the main types of precipitation are snow, sleet, or freezing rain.”

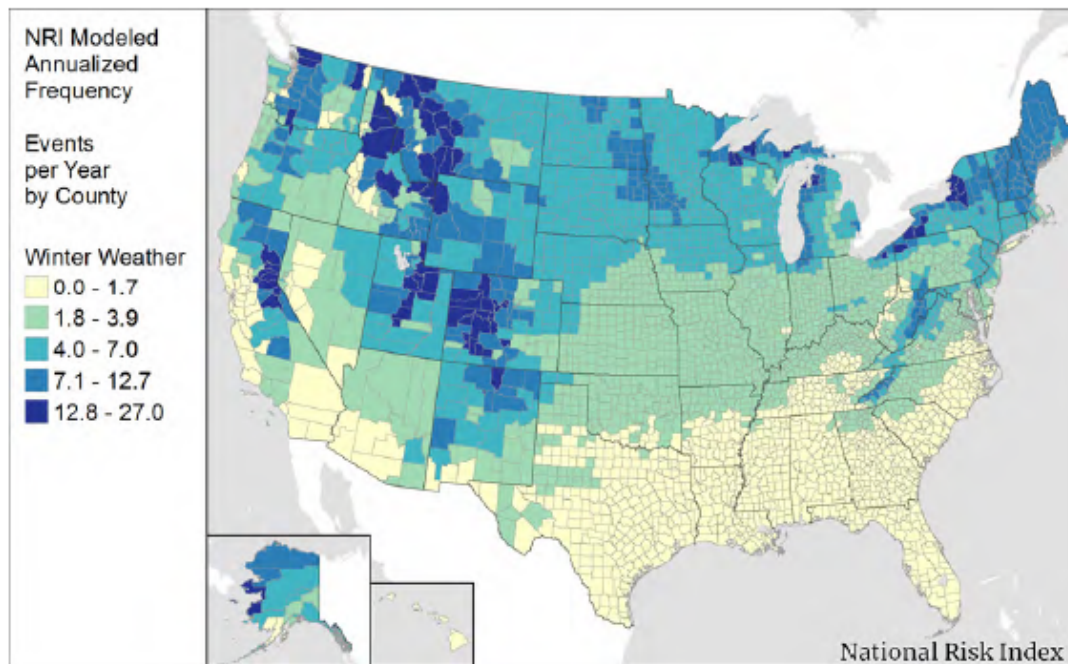
##### **Period of Record:**

“In the 1990s and early 2000s, the NWS’s system of recording watch, warnings, and advisories (WWA) made automated processing too difficult. So, in 2005, the Valid Time Extent Code (VTEC) system was implemented, which allowed for the easy automated parsing of alert data. Therefore, NWS weather events data were downloaded for 2005 through 2017. The date range utilized for the NRI is 11/12/2005 to 12/31/2017, so the period of record for which Winter Weather data are utilized is 12.14 years.”

#### **NRI Winter Weather Type Codes (from NRI Technical Documentation Table 64, Page 23-3):**

*Note: Although we do not reference these specific NRI type codes directly in our analysis, they are a useful standard for identifying the many various Winter Weather phenomena.*

| PHENOM Code | Phenomena Code Description        |
|-------------|-----------------------------------|
| BZ          | Blizzard                          |
| HS          | Heavy Snow                        |
| LB          | Lake Effect Snow and Blowing Snow |
| LE          | Lake Effect Snow                  |
| SN          | Snow                              |
| SB          | Snow and Blowing Snow             |
| WS          | Winter Storm                      |
| WW          | Winter Weather                    |



**Figure 153: Annualized Winter Weather Frequency by County**

## 5- Strong Winds

|                      |                     |
|----------------------|---------------------|
| Number of Events     | 428                 |
| Annualized Frequency | 13.40               |
| HLR - Overall Rating | Very Low            |
| EAL Score            | 31.08               |
| EAL Rating           | Relatively Moderate |
| Risk Score           | 16.83               |
| Risk Rating          | Relatively Moderate |

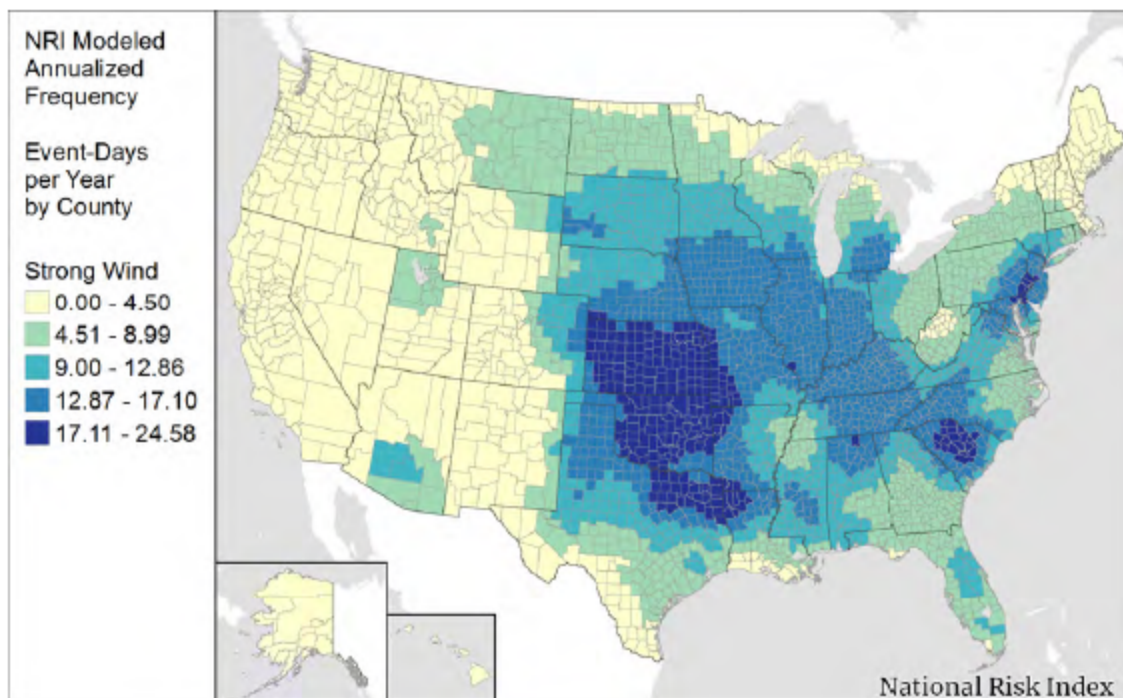
### **NRI Event Definition:**

“Strong Wind consists of damaging winds, often originating from thunderstorms, (that are classified as) exceeding 58 mph.” The NRI and their data sources (NOAA, the NEIC, etc.) further class wind events as ‘Derecho’, ‘Wind’, and ‘Straight Line Wind’.

### **Period of Record:**

To use only the most accurate data, wind speed data between 1/1/1986 and 12/31/2017 are analyzed, so the period of record for which Strong Wind data are utilized is 32 years.





**Figure 113: Annualized Strong Wind Frequency by County**

## 6- Riverine/Urban Flooding

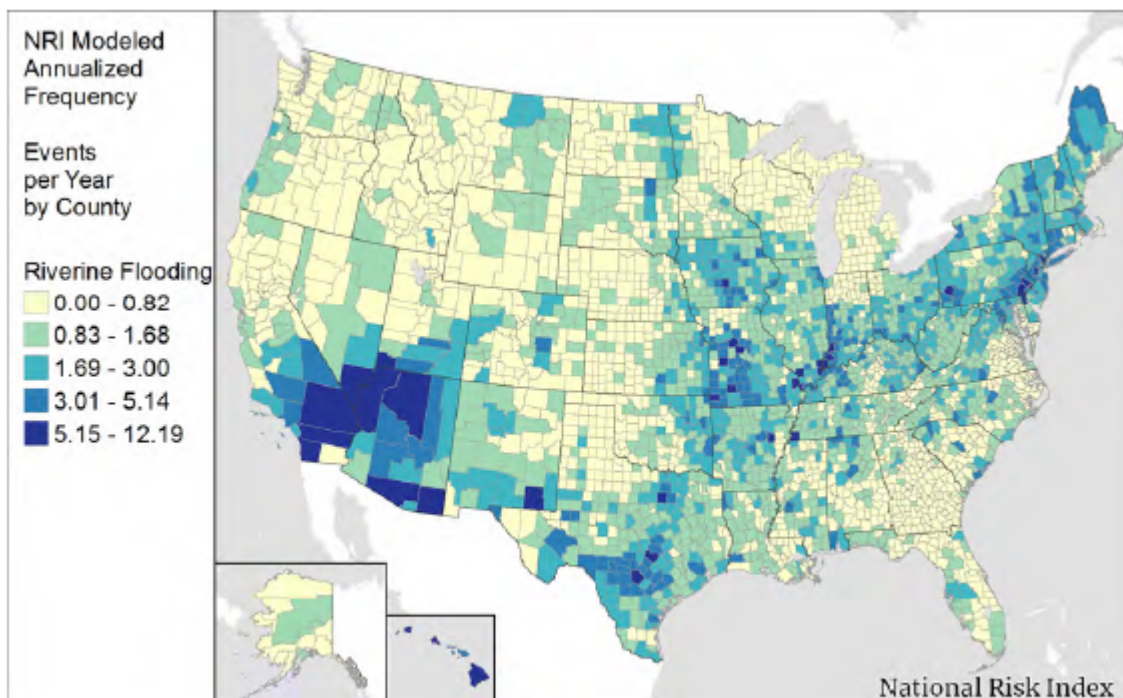
|                      |                     |
|----------------------|---------------------|
| Number of Events     | 13                  |
| Annualized Frequency | 0.59                |
| HLR - Overall Rating | Very Low            |
| EAL Score            | 23.22               |
| EAL Rating           | Relatively Moderate |
| Risk Score           | 14.42               |
| Risk Rating          | Relatively Low      |

### NRI Event Definition:

Riverine Flooding is when streams and rivers exceed the capacity of their natural or constructed channels to accommodate water flow and water overflows the banks, spilling into adjacent low-lying, dry land. *Note: The NRI does not provide data on Urban Flooding as a specific phenomenon. We*

### Period of Record:

The Riverine Flooding frequency calculation is based on the number of recorded Riverine Flooding events in the NWS Storm Events Database from 1/1/1995 to 12/31/2016, so the period of record is 22.01 years.



**Figure 103: Annualized Riverine Flooding Frequency by County**

## 7- Tornado

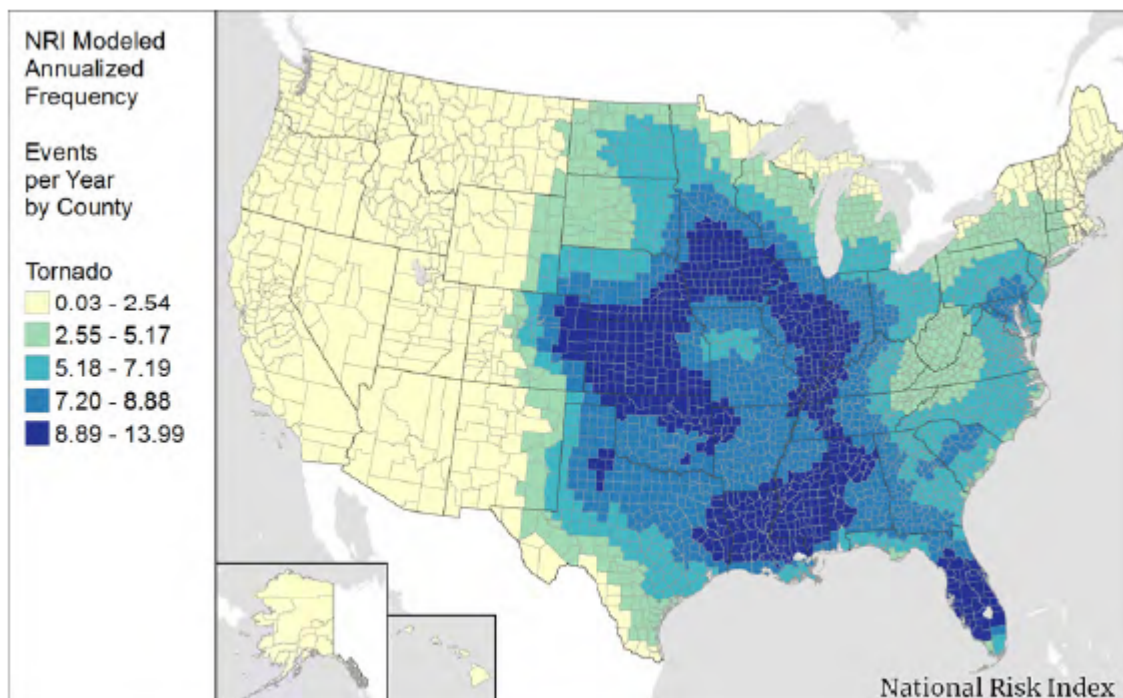
|                      |                     |
|----------------------|---------------------|
| Number of Events     | 9                   |
| Annualized Frequency | 6.18                |
| HLR - Overall Rating | Relatively Moderate |
| EAL Score            | 28.62               |
| EAL Rating           | Relatively High     |
| Risk Score           | 13.61               |
| Risk Rating          | Relatively Moderate |

### NRI Event Definition:

“A Tornado is a narrow, violently rotating column of air that extends from the base of a thunderstorm to the ground and is visible only if it forms a condensation funnel made up of water droplets, dust, and debris.”

### Period of Record:

“To use only the most accurate data, Tornado data between 1/1/1986 and 12/31/2017 are analyzed, so the period of record for which Tornado data are utilized is 32 years.”



**Figure 123: Annualized Tornado Frequency by County**

## 8- Ice Storm

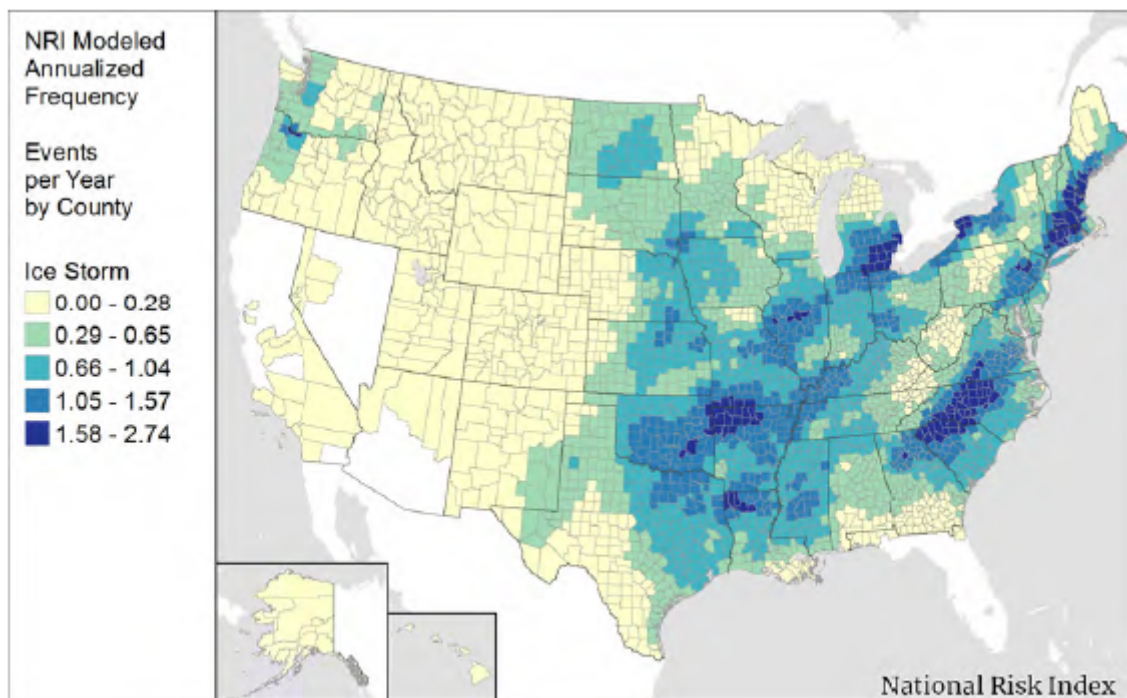
|                      |          |
|----------------------|----------|
| Number of Events     | 100      |
| Annualized Frequency | 1.49     |
| HLR - Overall Rating | Very Low |
| EAL Score            | 12.89    |
| EAL Rating           | Very Low |
| Risk Score           | 6.20     |
| Risk Rating          | Very Low |

### NRI Event Definition:

“An Ice Storm is a freezing rain situation (rain that freezes on surface contact) with significant ice accumulations of 0.25 inches or greater.”

### Period of Record:

“To capture the largest extent of credible data, records from 12/31/1946 to 2/12/2014 are analyzed. The period of record for which Ice Storm data are utilized is 67.16 years.”



**Figure 83: Annualized Ice Storm Frequency by County**

**Note: The following two Natural Hazard events (Wildfire and Drought) score minimally for Kalamazoo County in the National Risk Index, and are therefore ranked 9 and 10, respectively in this table. However, the Planning Team decided to include them for a number of reasons, which are briefly explained below. Further discussion of the hazards are included in our more detailed analysis based on the State of Michigan hazard Mitigation Plan and Hazard Analysis in the next section.**

## 9- Wildfire

|                      |                |
|----------------------|----------------|
| Number of Events     | 0              |
| Annualized Frequency | 0.00           |
| HLR - Overall Rating | Relatively Low |
| EAL Score            | 1.17           |
| EAL Rating           | Very Low       |
| Risk Score           | 0.93           |
| Risk Rating          | Very Low       |

### *Note on Wildfire Inclusion for Kalamazoo County:*

Wildfires score low on quantitative analysis like the NRI primarily due to the fact that a good proportion of the NRI risk-scoring equation is based on dollar loss, and historically, the monetary loss for wildfire events for Kalamazoo County has been quite low when annualized. However, given demographic and development trends, residential and infrastructure growth increasingly pushes at the limits of the urban/wildland interface, leading to increased risk for loss of life and property. This is a perfect example (much like coastal erosion), of a *natural hazard's* potential impact being possibly directly affected by human development, and where planning, zoning, direct mitigation activities, and setback enforcement can serve to minimize potential losses.

## 10- Drought

|                      |                           |
|----------------------|---------------------------|
| Number of Events     | 0                         |
| Annualized Frequency | 0.00                      |
| HLR - Overall Rating | No Rating                 |
| EAL Rating           | No Expected Annual Losses |
| Risk Score           | 0.00                      |
| Risk Rating          | No Rating                 |

### *Note on Drought Inclusion for Kalamazoo County:*

Drought scoring through the NRI seems to depend on very specific meteorological definitions of 'Drought' events, and a formula of calculating annualized frequency that uses 'event days' at the census-tract level. Very confusing, but the bottom line is that even though we know Kalamazoo County (and the State as a whole) is impacted by drought events somewhat regularly, with losses heavily weighted on the agricultural sector, we cannot rely on the NRI data table for this hazard. A much better and more detailed discussion of drought is found in the Michigan Hazard Analysis ('MHA' 2019 version, starting on Page 217). Another point of confusion here with the NRI and to some extent with the MHA is the difference between a Presidential or Executive 'Disaster Declaration' and county-level disaster area 'Designations' made by the USDA.



## Chapter 5: 2013 Action Plan Status- 2021 Update

### Status Review of KCHMP 2013 Action Items

What follows is a statement taken from the 2013 KCHMP regarding their Action Item chapter. It has been edited for clarity and consistency with this update:

“Based upon the discussion of the KCHMP at its December 2012 meeting, highest priority (was) given to the actions that (were) specifically considered to be hazard mitigation actions. Although various education and preparedness programs (were) still recognized as important, it was considered vital that they not unduly distract from the main point of this plan—advance actions taken to physically reduce the impacts of hazards and threats in the long term.

Priority was given to actions that (were, at the time), considered likely to be most cost-effective, fundable under federal hazard mitigation grant programs, politically acceptable, environmentally sound, not already fully covered under other types of programs, and most likely to accomplish their intended hazard mitigation purposes. The action items (were) thus prioritized into smaller lists of 11 high priority items, 22 medium priority items, and 17 moderate priority items. These (were) not more finely ranked within these three categories, because of the difficulty in trying to compare things that are very different from each other. Many of these items (were) scheduled for simultaneous implementation, or implementation that (was) contingent upon external funding sources, which further complicated scheduling and prioritization estimates. Schedules (were) given in terms of an estimated initiation point, rather than an attempt to describe unpredictable contingencies. By its nature, emergency management deals with the unexpected (i.e. disasters), tending to make scheduling predictions more of a statement of intended prioritization rather than a clear-cut activity, since sudden, overt disastrous events necessarily have to be given higher priority within emergency management than long-term activities that are subtler, smaller-scale, and less impactful.

Various actions were re-worded to allow for more general, multi-hazard, coordinated activities, rather than the hazard-by-hazard approach taken in 2006. Chapter 2 of this 2021 update partially indicates the range of hazard mitigation activities that were considered, but discussion included many other ideas, based upon the MSP publication 207 (“Local Hazard Mitigation Planning Workbook,” February 2003 edition) and its lists of hazard mitigation strategies (on pages 74 to 83). Rather than reprinting all these pages here, this document can be found online on the Michigan State Police Emergency Management and Homeland Security website, under the “Planning and Publications” page.”

*Note: Several new hazard mitigation actions were added to the 2013 version of the updated plan as a result of KCDC discussions and local community input into the plan. In the list below, they have been specifically labeled as “NEW.” All of these additional hazard mitigation actions appear in the high priority action list.*

*All Action Items and descriptions herein are taken directly from the 2013 update of the KCHMP. Any changes, additions, or status updates are shown in **RED**.*

### HIGH PRIORITY HAZARD MITIGATION ACTIONS FOR KALAMAZOO COUNTY (2013)

#### 1. “NEW” (2013) Action Item Description:

**Add new warning systems (e.g. outdoor sirens) where needed to fill gaps in Kalamazoo County’s current coverage.**

- Deliverables: New outdoor warning sirens (or alternative emergency notification systems, as determined by local/county officials)
- Lead Manager Assigned: OEM and participating local governments
- Schedule to Initiate Action: Spring 2013
- Potential Sources for Technical Information: MDOT; Fire Departments; MSP; FEMA, KCDC
- Potential Sources of Financial Assistance: MSP, FEMA
- Priority: High
- **2021 Status Update: ONGOING.** After a period of expansion of the system (at one point the County had 73 active sirens), high maintenance costs and low local government support for long-term programmatic budget outlays, many jurisdictions have deactivated or removed individual sirens (see map below). This in spite of an effort to add siren activation to the new Kalamazoo County Consolidated Dispatch Authority (KCCDA) system. A few jurisdictions did in fact devolve their sirens into the KCCDA activation, but mainly in the metro areas of the cities of Kalamazoo and Portage. Many if the more rural townships and villages feel that activation of the sirens is not area-specific enough, resulting in wide activations that include parts of the county not affected by a given threat.

Another contributing factor to outdoor sirens falling out of favor with a majority of the population is the proliferation of personal cell phones and alerting apps. Without substantial outside (State or Federal) funding support, the likelihood of a revitalization of the system countywide is doubtful at best.

## **2. Action Item Description:**

### **Make available safe rooms (or shelters) in houses, manufactured home communities, community facilities and business districts.**

- Identified needs include the downtown Kalamazoo area (e.g. Arcadia Festival and other events) and mobile home parks. Additional areas for further investigation include the identification of any remaining needs within local schools, and identifying special needs populations who may require safe rooms (e.g. adult foster care, etc.)
- Deliverables: 1) Conduct a survey and create a database of existing shelters in, at, near, or available to vulnerable areas/communities. 2) Develop a method for identification and dissemination of best practices for such shelters. 3) Develop a process (KCDC) for updating and sharing such information with potentially affected communities and their residents, and a method for disseminating information to visitors. 4) Coordinate testing and public education to coincide with the weekly testing of the weather/fire emergency siren broadcasts. 5) Coordinate the dissemination of information (develop a plan) to residents (MSU Extension, etc.).
- Lead Manager Assigned: Local governments, OEM
- Schedule to Initiate Action: Spring 2013
- Potential Sources of Technical Assistance: FEMA; KCDC; Office of Homeland Security; County Planning Department; County Building Inspectors, Western Michigan University.
- Potential Sources of Financial Assistance: FEMA; Kalamazoo County; Local Governments.
- Priority: High
- **2021 Status Update: MIXED.** There are a number of facets to this item(s). As for large outdoor gatherings, the event permitting process is usually the purview of the local Fire Marshall or other official. Sheltering considerations are rarely part of that process. Mobile home parks and recreational vehicle camps, etc., are regulated by the Michigan Mobile Home Commission, which also oversees implementation of local regulations. There are currently no mobile home parks in Kalamazoo County that have designated tornado shelters. Public information and warning/alerting are discussed in the Communications section of the Core Capabilities and Community Lifelines Action Plan in Chapter 6,

## **3. NEW Action Item Description**

### **Encourage and implement the anchoring of vulnerable mobile homes to a secure foundation (to lessen damages from winds, tornadoes, and floods).**

- Deliverables: The successful anchoring of mobile homes, and/or the promotion of the concept to encourage relevant owners, inhabitants, and managers to engage in anchoring activities, possibly including the distribution of materials about the topic. The internet contains various web sites about the topic, easily found through keyword searches such as “anchoring mobile homes.”
- Target Audience: Code officials, building officials, building inspectors, mobile home residents, mobile home park owners/operators, the insurance industry, etc.
- Lead Manager Assigned: Local governments, OEM
- Scheduled to Initiate: Winter 2013
- Estimated Costs: Probably less than \$100 per unit, not counting the labor involved.
- Proposed Sources of Technical Assistance: KCDC; Broadcast Media; WMU; OEM
- Potential Sources of Financial Assistance: FEMA, Local and private funds
- Priority: High
- **2021 Status Update: NOT INITIATED.** The State of Michigan regulates “mobile homes” under The Michigan Mobile Home Commission Act (Act 96 of 1987). This law provides for the promulgation of a Mobile Home Code and the oversight of licensure, regulation, construction, operation, and management of mobile home parks. In Kalamazoo County, as in many Michigan counties, zoning and building inspections are mainly administered by each township, city, and village. No further activity on this issue beyond possible public awareness campaigning.

## **4. NEW Action Item Description:**



**Develop and/or enhance a method for using low-power AM radio broadcasts (e.g. “Highway Advisory Radios”) for the purpose of transmitting localized emergency management information.**

- Deliverables: The establishment of a local low-frequency radio station that broadcasts relevant information to the public. Also, the provision of local signs that inform residents and travelers of the availability of such information on the new radio station.
- Target Audience: All local residents, businesses, travelers, and visitors.
- Lead Manager Assigned: OEM
- Scheduled to Initiate: Summer 2013
- Estimated Costs: Costs of producing tapes for radio stations estimated at \$5,000. Not counting the building space needed for a broadcasting station, or for transmission devices, or for operating costs and wages, a basic radio station could probably be set up with a few thousand dollars of equipment.
- Proposed Sources of Technical Assistance: KCDC; KARC; Broadcast Media; WMU; MSU Extension
- Potential Sources of Financial Assistance: FEMA, Office of Homeland Security, Local donations
- Priority: High
- 2021 Status Update: ONGOING. Since the establishment of the Kalamazoo County Consolidated Dispatch Authority and its operational launch on October 30, 2018, the capabilities for the broadcast of area-wide alerts has been greatly enhanced. Much work remains to be done to realize the full capabilities of various components of the system, both actual and envisioned. A new Action Item in Chapter 6 will outline a proposal(s) to further those aims. Additionally, the local Radio Amateur Civil Emergency Services team (R.A.C.E.S.), maintains a portable AM transmitter kit that can be used in the event of a loss of traditional broadcast infrastructure or during special events.

**5. Action Item Description:**

**Provide NWS weather monitors to selected agencies.**

- Deliverables: Supply Programmable Weather Monitors for reduced or no cost to areas of the County not covered by current, radio activated siren warning systems. Distribute and Program Monitors, Training on Monitor Use. NOTE: Smart phone warnings may be able to serve as an alternate means of accomplishing this action.
- Target Audience: Adult Foster Homes (116), Day Care Facilities (143 private outside of current siren areas – 414 total locations), Apartments (200 locations, 19,168 units), Manufactured Homes (29 locations, 5,020 units), Hotels, Motels (38), Hearing-Impaired (500). (Schools, libraries, and local government offices are covered.)
- Lead Manager Assigned: OEM, Local governments
- Scheduled to Initiate: Ongoing
- Estimated Costs: Costs of producing tapes for radio stations estimated at \$5,000. (\$54.00 per monitor, \$128.00 for monitor and accessories for the hearing impaired). Based on listed quantities, cost estimates range from \$98,344 (one unit per location listed) to \$1,365,562 (one unit for each location and every apartment and manufactured home).
- Proposed Sources of Technical Assistance: KCDC; KARC; Broadcast Media; WMU; MSU Extension
- Potential Sources of Financial Assistance: FEMA, Office of Homeland Security, Local donations
- Priority: High
- 2021 Status Update: ONGOING. The wide proliferation of smartphones and other mobile computing devices, and the enhanced alerting provided by the National Weather Service, NOAA, FEMA, via broadcast radio/TV news, and other outlets, has taken the focus off of alternative methods of conveying timely emergency weather notifications. A limited distribution to County Agencies of replacement, updated NOAA Weather Alert radios was undertaken by OEM in 2017-2020. This only covered County agency buildings and select public/private entities (including schools) upon request. The wider distribution outlined above is beyond the scope of a county-level OEM program without significant staffing and budgetary support from outside sources. At this point, OEM will recommend weather alert capabilities be standardized in individual Emergency Action Plans.

**6. Action Item Description:**

**Provide take-cover locations for manufactured housing communities.**

- Deliverables: 1) Basements underneath community centers for take cover in case of a tornado. 2) Tornado Shelters. 3) Building a community center which would include a basement for take cover. 4) Adding a basement to a future community center for take cover purposes - location: manufactured home community.

- Lead Manager Assigned: Chairman of Local Hazard Mitigation Subcommittee of KCDC
- Scheduled to Initiate: Ongoing
- Costs: Varies by project for basements. Pre-fabricated shelters cost approximately \$6,000 for a 12-person shelter, installed. Costs are projected to range between \$174,000 (one pre-fabricated unit per park) and \$7,530,000 (assumes on average 3 persons per mobile home times about 5,000 units in the County)
- Proposed Sources of Technical Assistance: KCDC; KARC; WMU; MSU Extension
- Proposed Sources for Financial Assistance: FEMA; Office of Homeland Security; Local In-Kind contributions
- Priority: High
- **2021 Status Update: NOT INITIATED.** These types of projects are eligible for funding from various sources (FEMA, Michigan State Police Emergency Management/Homeland Security Division, etc.), often to include partial matching funds from the private entities that own or operate mobile home/RV parks or communities. An excellent example of such a project can be found in Allegan County at the Sandy Pines Resort. The \$2.1 million project with an initial phase completed in June of 2018, involved replacing existing “convenience centers” with structures hardened to withstand an EF4 tornado. An advisory group could be formed to initiate and guide such projects in Kalamazoo County. As currently staffed and supported, the KCOEM does not have sufficient capability to manage such projects.

## **7. Action Item Description:**

### **Establish heating centers/shelters for vulnerable populations.**

- Deliverables: Establish and publish a list of available shelters. NOTE: This task ties in with the need for backup power generators at the shelter facilities.
- Lead Manager Assigned: Red Cross representative - KCDC
- Schedule to Initiate Action: Ongoing
- Potential Sources of Technical Assistance: MSU Extension; FEMA; Red Cross
- Potential Sources of Financial Assistance: Red Cross; Local Governments
- Priority: High
- **2021 Status Update: ONGOING.** The American Red Cross of Southwest Michigan (ARCSWM) remains the lead agency for emergency sheltering in Kalamazoo County. Backup generator capacity is maintained by several local response agencies, including the OEM and the MSP Emergency Management & Homeland Security Division Region 5 Coalition. The ARCSWM, in conjunction with OEM and the KalCounty HCS Emergency Planning Coordinator, updated the extreme weather sheltering plan for the County in 2020/2021.

## **8. Action Item Description:**

### **Promote the use of snow fences or "living snow fences" (rows of trees or vegetation) to limit the blowing and drifting of snow over critical roadway segments.**

- Deliverables: Procedures, guidelines, and actual installation of appropriate snow fencing. Likely sites identified at the county level include M-43 from G Avenue into Richland, U.S.-131 south of Schoolcraft, and I-96 between Galesburg and Augusta. (Participating local governments have identified their own locations for local prioritization—please refer to the Appendix for this information.)
- Lead Manager Assigned: RCKC, local governments
- Scheduled to Initiate: Winter 2012-2013
- Potential Sources of Technical Assistance: Online guidance, MDOT, RCKC.
- Potential Sources of Financial Assistance: County; Federal; State
- Priority: High
- **2021 Status Update: ONGOING.** The Michigan Department of Transportation (MDOT) and the Road Commission of Kalamazoo County (RCKC) prioritize snow fencing projects as part of their respective overall safety plans. According to a 2019 evaluation of MDOT’s Highway Safety Programs (performed by MSU and WSP-USA engineering), “The installation of snow fencing is currently included on Michigan’s TOR form and has been associated with a reduction of crashes related to wintry conditions, given the state’s climate this remains an important countermeasure incorporated within the safety program.” Additionally, many large private property owners install seasonal snow fencing to protect their own interests, often benefitting the public at large.

## **9. Action Item Description:**

## **Investigate Best Practices for Protecting Critical Infrastructures**

- Deliverables: 1) Analysis and recommendations for protecting Critical Infrastructures within Kalamazoo County; 2) new and amended continuity of operations plans; 3) greater inclusion of the financial and utility sectors; 3) improved security surveillance.
- Lead Manager Assigned: KCDC (plus OEM, involved public and private agencies)
- Schedule to Initiate Action: ongoing
- Potential Sources of Technical Assistance: Michigan Quality Council; KCDC; WMU; CIAO; NIPC
- Potential Sources of Financial Assistance: Kalamazoo County Governments
- Priority: High (The importance of this issue has only increased over recent years.)
- **2021 Status Update: EVOLVING AND ONGOING.** As identified in previous chapters of this Plan, Kalamazoo County is on the leading edge of adopting evolving strategies to address critical Infrastructure/Key Resources (CI/KR), both in planning and operations geared towards response and recovery. Federal initiatives such as Community Lifelines, the Building Resilient Infrastructure and Communities (BRIC) program, and others, seek to more clearly define sectors and identify methods for improving resiliency by engaging local, state, tribal, and federal partners directly with private-sector entities. The ultimate goal is more communication and cooperation at all levels.

### **10. Action Item Description:**

#### **Investigate the Use of ITS (Intelligent Transportation Systems) Technology for public warning and emergency information purposes.**

- Deliverables: 1) Investigate opportunities for coordination with MDOT, 2) Installation of actual ITS devices, 3) Identify all involved costs and potential liabilities 4) Evaluate, select, and implement options, as coordination and resources allow, 5) Participate in KCDC planning, drills, and evaluation
- Lead Manager Assigned: KCDC, OEM
- Schedule to Initiate Action: Ongoing
- Potential Sources for Technical Information: MDOT; RCKC; Police Departments; MSP; KCDC
- Potential Sources of Financial Assistance: MDOT; MSP
- Priority: High

**2021 Status Update: NOT SPECIFICALLY INITIATED. ONGOING/EVOLVING TECHNOLOGIES.** This issue has become so wide-ranging and comprehensive in recent years that a thorough discussion of status is beyond the scope of this document. Technology advances at all strata of the transportation infrastructure have radically changed the playing field. The 2014 USDOT Concept Document “**Intelligent Transportation System (ITS) Evolution GPS/GNSS Role in Emerging Vehicle Fleets and Highway Infrastructure**” details many of these emerging technologies, including on-board vehicle technology applications, “self-driving” cars and trucks, “Connected Vehicle Research”, and “smart” traffic control devices. Many newer-model vehicles (particularly post-2017 models) have advanced systems built-in by design, with capabilities for adapting to the changing landscape of ITS. Some agencies and jurisdictions within Kalamazoo County and throughout our immediate area have adopted at least some of the infrastructure-side technologies, including traffic surveillance cameras, adaptive traffic signals, and integrated weather-warning systems.

### **11. NEW Action Item Description:**

#### **Obtain and install backup power generators at key facilities within Kalamazoo County and its local communities.**

- Deliverables: 1) Investigate opportunities for installing generators at key facilities such as water pumping stations, lift stations, cell phone facilities, medical care facilities, and American Red Cross shelters (4 currently have backup generators). Current hospital generators may be undersized. 2) Identify costs involved. 3) Obtain funding, as needed and available. 4) Install generators at key selected locations, when possible. 5) Some generators may be able to be shared between more than one facility when these are located near each other.
- Lead Manager Assigned: OEM, Local governments
- Schedule to Initiate Action: Spring 2013
- Potential Sources for Technical Information: Fire Departments; KARC; KCDC; MSP
- Potential Sources of Financial Assistance: FEMA; MSP
- Priority: High
- **2021 Status Update: WAITING FOR CoK RESPONSE W/MAP, ETC.**

## **MEDIUM PRIORITY HAZARD-RELATED ACTIONS FOR KALAMAZOO COUNTY**

The following were judged not to be purely hazard mitigation actions, and thus are classified as medium-priority for this plan, even though some are more generally considered high-priority for the county as a whole (outside of a specific hazard mitigation planning context). Some closely related ideas have been merged together in this updated 2012 list of hazard-related activities for 2013-2017

### **1. Action Item Description:**

**Promote Completion of Site Emergency Plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, stadiums, recreation areas, and other appropriate sites.**

- Deliverables: Establish a consortium of public citizenry (MCCC, KCDC, etc.) to obtain, review, and report best practices relating to emergency plans, mitigation activities, and success stories.
- Lead Manager Assigned: Local Hazard Mitigation Subcommittee - KCDC
- Schedule to Initiate Action: Ongoing
- Potential Sources of Technical Assistance: KCDC; FEMA; Office of Homeland Security; Insurance Industry
- Priority: Medium (Ongoing. These are response plans and thus not prioritized within this hazard mitigation plan.)
- 2021 Status Update: ONGOING. This item appears to be based on a list of “Critical Infrastructure” (Critical Infrastructure/Key Resources, or CI/KR) that was provided to or compiled by the previous Planning Team. A more thorough and lifeline-based listing of key facilities in Kalamazoo County is in the compilation process and the version to-date is included in the Community Profile in Chapter 1. The KCOEM plans to model the KCDC and EOC structures along the Community Lifelines construct, identifying and assigning Sector Leads to assist in planning and directing the ongoing efforts to more specifically identify CI/KR and encourage and assist the development and maintenance of Emergency Action Plans and Emergency Support

### **2. Action Item Description:**

**Enhance awareness and participation in emergency planning activities of the KCDC, including civil disturbance, WMD-related, and threat/risk assessment, planning, and analysis activities.**

- Deliverables: 1) Support and/or participate in cooperative efforts towards the identification of hazards related to this action item. 2) On an ongoing basis, add, change, and/or delete items from the list of hazards and mitigation strategies identified under this action item. 3) Implement and/or support, where applicable and/or appropriate, best practices, recommendations, and/or Mitigation Strategies developed or disseminated by participating representatives of the KCDC. 4) Regular analysis and recommendations regarding WMD-related threats/activity. 5) Inclusion of risk and threat assessment information within continuity of operations plan. 6) Continue to participate in annual MSP reviews. 7) Include in COOP plans.
- Lead Manager Assigned: Local governments (Fire Services, EMS, KCDC members, 5<sup>th</sup> District Medical Resource Coalition)
- Priority: Medium (ongoing; periodic for specific public events and general WMD awareness)
- 2021 Status Update: ONGOING, ELEVATED. The overly broad scope of this item, coupled with the highly-charged local and nationwide political environment, may deem it necessary to focus on the enhancement of local information/intelligence gathering and sharing capabilities, in order to better address these evolving threats. The prevalence of readily-available online information with regards to both “activist groups” (on the extreme ends of the spectrum), as well as instruction and tactical guidance from “influencers”, makes the threat environment very difficult to monitor or reevaluate on an ongoing basis. Public awareness, in the form of distributable media product and/or direct community liaison action (such as BMAP, the Bomb-Making Materials Awareness Program), can and should be leveraged as force-multipliers for local agencies that by themselves would not have sufficient resources to create or maintain an effective program.

### **3. Action Item Description:**

**Promote Awareness for Developing site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, stadiums, recreation areas, and other appropriate sites.**

- Deliverables: Develop and distribute awareness pamphlets at events such as the County Fair; Invitation to businesses to participate in the annual KALEX training exercise.
- Lead Manager Assigned: PIO - MSU Extension Office
- Schedule to Initiate Action: County Fair - 2013
- Potential Sources of Technical Assistance: KCDC; MSP
- Potential Sources of Financial Assistance: N/A
- Priority: Medium (ongoing, periodic)
- **2021 Status Update: ONGOING- (ALSO SEE ITEM 1 ABOVE).**

### **4. Action Item Description:**

**Establish avenues of reporting (and rewards) for information preventing terrorist incidents and sabotage.**

- Deliverables: Recommendation for promotion and/or implementation of anonymous reporting system (may include www discussion group, email, and mail or telephone process).
- Lead Manager Assigned: Kalamazoo County Emergency Management Director
- Schedule to Initiate Action: Ongoing
- Potential Sources of Technical Assistance: KCDC; MSU Extension; Office of Homeland Security
- Potential Sources of Financial Assistance: MSU Extension; Local Governments
- Priority: Medium (ongoing; the "See Something, Say Something" campaign is one of the recent forms that this action involves)
- **2021 Status Update: NOT INITIATED.**

### **5. Action Item Description:**

**Encourage residents to develop a Family Disaster Plan that includes the preparation of a Disaster Supplies Kit.**

- Deliverables: Help disseminate the Homeland Security messages for it. Establish a presence for it on the County Web. Establish discussion group -- with process to monitor and evaluate by some member of the KCDC for encouraging discussion and obtaining information.
- Lead Manager: PIO - KCDC (MSU Extension)
- Scheduled to Initiate Action: Ongoing
- Potential Sources of Technical Assistance: Office of Homeland Security
- Potential Sources of Financial Assistance: Office of Homeland Security; FEMA
- Priority: Medium ONGOING- NORMAL COURSE OF BUSINESS
- **2021 Status Update: ONGOING. Kalamazoo County OEM actively participates in annual designated preparedness events, including "Michigan Severe Weather Awareness Week", "National Disaster Preparedness Month" (usually September), and "National Cybersecurity Awareness Month" (October), as well as ongoing readiness campaigns at the state and federal levels sponsored or developed by the various agencies of authority, to include the US Department of Homeland Security, FEMA, Michigan State Police Emergency Management and Homeland Security Department (EMHSD). "MiReady", "Ready.gov" are just a few of the many initiatives in place. These campaigns include broad social media messaging, traditional news outlet participation, and direct community engagement efforts.**

### **6. Action Item Description:**

**Promote community awareness of shelters and warning systems.**

- Deliverables: 1) Conduct a survey of existing and undersized shelters for the possibility of refurbishment, expansion, or supplementation. 2) Publish/Distribute a list of facilities to the 24 units of governments' emergency responders (via the KCDC).
- Lead Manager Assigned: Red Cross ESS Director
- Scheduled to Initiate Action: Summer 2013
- Potential Sources of Technical Assistance: KCDC; FEMA; Red Cross
- Potential Sources of Financial Assistance: County
- Priority: Medium ONGOING- NORMAL COURSE OF BUSINESS

- **2021 Status Update: ONGOING (PARTIAL).** A review of shelter sites and status was conducted in 2017. ARCSWM remains the primary agency for sheltering. They do not distribute shelter lists for security and operations purposes.
- Visit <https://community.fema.gov/ProtectiveActions/s/>

#### **7. Action Item Description:**

**Use safe interior designs and furniture arrangements to reduce the chances of damage/injury from earthquakes, wildfires, and tornado/wind hazards.**

- Deliverable: 1) Develop a team to evaluate and/or develop best practices 2) Disseminate them to the public 3) Develop a means for evaluate the effectiveness of interior designs after an event.
- Lead Manager Assigned: KCDC
- Schedule to Initiate Action: Ongoing
- Potential Sources of Technical Assistance: International Code Council; Building Associations; MSP; FEMA; Office of Homeland Security
- Potential Sources of Financial Assistance: FEMA; Red Cross
- Priority: Medium ONGOING- NORMAL COURSE OF BUSINESS
- **2021 Status Update: DELETED.** Scope too broad; authority non-existent. Discontinued as Active Item in favor of general Public Awareness and education.

#### **8. Action Item Description:**

**Provide emergency information to residents and guests who speak English as a second language.**

- Deliverables: Advertising/Educating of its availability, Partnering with selected radio and TV stations, Interpretation services for partnering stations, Procedures on how to broadcast such messages.
- Lead Manager Assigned: Chairman, Local Hazard Mitigation Subcommittee - KCDC.
- Scheduled to Initiate: Ongoing
- Estimated Costs: Costs of producing tapes for radio stations estimated at \$5,000.
- Potential Sources of Financial Assistance: Office of Homeland Security, Local donations
- Priority: Medium ONGOING- NORMAL COURSE OF BUSINESS
- **2021 Status Update: ONGOING:** In alignment with the “Whole Communities/All Hazards” approach to all phases of emergency management and planning, great efforts have been made to enhance inclusion for all population groups. Much work remains, but this, too is an overly broad edict and falls outside of the immediate purview of the OEM and the current composition of the KCDC.

#### **9. Action Item Description:**

**Organize outreach to isolated, vulnerable, or special-needs populations.**

- Deliverables: Investigation and tabulation of priority needs populations; recommendations for action.
- Lead Manager Assigned: Red Cross representative - KCDC
- Scheduled to Initiate: Ongoing
- Potential Sources of Technical Assistance: MSU Extension; FEMA; Red Cross
- Potential Sources of Financial Assistance: FEMA; Red Cross; Local Governments
- Priority: Medium (ongoing, uses a regularly changing list of licensed facilities)
- **2021 Status Update: ONGOING.** As with Item 8 above, the same can be said of this initiative. The CoVID-19 response in 2020-2021 highlighted shortcomings in this area. Local agencies, NGOs, Churches, etc., had to step in and fill numerous voids previously overlooked. This included printed messaging in multiple languages from Public Health, as well as individual outreach and the establishment of non-traditional food distribution systems, among others. An ad-hoc association of volunteer organizations, community agencies, and governmental partners known as the Kalamazoo County Response Consortium was able to formalize its structure and expand its base during the CoVID crisis. That group is now being morphed into a VOAD structure (Volunteer Organizations Aiding in Disaster), with its leadership setting course for it serve as a Long-Term Recovery Group for disaster recovery. Much work will need to be done to fulfill this vision, but the OEM and the KCDC welcome the idea of an organization that can take on two of the ‘heavy lifts’ of response and recovery; namely, volunteer and donations management.



#### **10. Action Item Description:**

##### **Enhance awareness livestock and pet needs/problems during severe weather.**

- Deliverables: 1) Obtain best practices for animal/pet housing, emergency procedures, shelter, and care during storms, and rescue. 2) Coordinate with KC Animal Control Advisory Board 3) Dissemination of information to the community.
- Lead Manager Assigned: Chairperson – Emergency Animal Care Subcommittee of the KCDC
- Scheduled to Initiate: Ongoing
- Potential Sources of Technical Assistance: KC Animal Control Advisory Board, 4H; FEMA; Laboratory Animal Medicine and Science - Worldwide Safety Sciences, Pfizer; Veterinary House Calls of Grand Rapids<sup>92</sup>; Red Cross
- Potential Sources of Financial Assistance: N/A
- Priority: Medium ONGOING- NORMAL COURSE OF BUSINESS
- **2021 Status Update: ONGOING/NO FORMAL STRUCTURE. Additional organizations involved in this sector include the Michigan Department of Agriculture and Rural Development (MDARD), the USDA, and a number of not-for-profit and private groups that can mobilize when needed.**

#### **11. Action Item Description:**

##### **Implement plans for Floodplain Management and Protection of wetlands.**

- Deliverables: 1) Determine the requirements of 44 CFR Part 9 (Floodplain Management and Protection of Wetlands) and 44 CFR Part 10 (Environmental Considerations), 2) Develop recommendations for establishing compliance.
- Lead Manager Assigned: Chairman – Local Hazard Mitigation Planning Subcommittee, KCDC
- Schedule to Initiate: Ongoing
- Potential Sources of Technical Support: KCDC; FEMA; MSP; Local Municipalities
- Potential Sources of Financial Assistance: KCDC; FEMA; MSP; Volunteers
- Priority: Medium (ongoing, City of Kalamazoo Flood Plan, separate Floodplain Mgmt.)
- **2021 Status Update: NOT INITIATED ON COUNTYWIDE LEVEL. Kalamazoo Township, City of Kalamazoo, and other directly-impacted sub-jurisdictions have plans and/or projects proposed or underway. See City of Kalamazoo's "Northside Stormwater Relief Project", and "Portage Creek Flood Control Project", located in Chapter 7: Specific Projects.**

#### **12. Action Item Description:**

##### **Promote basic building code requirements related to flood mitigation.**

- Deliverables: 1) Develop benchmark building code requirements 2) Develop recommendations for comprehensive planning, code enforcement, zoning, open space requirements, subdivision regulations, land use and capital improvements planning.
- Lead Manager Assigned: KCDC Chairman - in partnership with City, Township, Village and County Planning agencies
- Departments
- Scheduled to Initiate: 2013
- Potential Sources of Technical Assistance: NFIP, MDEQ
- Potential Sources of Financial Assistance: County
- Priority: Medium ONGOING- NORMAL COURSE OF BUSINESS
- **2021 Status Update:**

#### **13. Action Item Description:**

##### **Promote awareness of the benefits of obtaining flood insurance.**

- Deliverables: Established mechanisms to promote the use of flood insurance under the National Flood Insurance Program to residents in flood prone areas or areas with a history of flooding. Possible measurable: An increased the number of policies and participating communities.
- Lead Manager Assigned: KCDC Chairman
- Scheduled to Initiate: Ongoing

- Potential Sources of Technical Assistance: NFIP, MDEQ, FEMA
- Potential Sources of Financial Assistance: County
- Priority: Medium ONGOING- NORMAL COURSE OF BUSINESS
- **2021 Status Update:**

#### **14. Action Item Description:**

**Increase awareness, coverage and use of NOAA Weather Radio (which can also provide notification to the community during any period of emergency, including enemy attack)**

- Deliverable: 1) Provide WWF34 NOAA weather radio coverage to the entire County, 2) provide the ability to use the local Weather Radio transmitter for emergency broadcasts, 3) develop a program/policy for dissemination of instructions and public awareness of the existence and use of/for the WWF34 NOAA broadcasting of weather data, 4) include Smart Phone access.
- Lead Manager Assigned: Local Radio Amateur Radio Civil Emergency Service (RACES) Coordinator
- Schedule to Initiate Action: Ongoing
- Potential Sources of Technical Assistance: Kalamazoo Amateur Radio Club (providers of WWF34); Red Cross; MSU Extension; KCDC
- Potential Sources of Financial Assistance: FEMA; Red Cross
- Priority: Medium ONGOING- NORMAL COURSE OF BUSINESS
- **2021 Status Update: ONGOING, EVOLVING.** OEM distributed several hundred updated weather radios to schools, county agencies and departments, and other organizations from 2017 thru 2019. Ongoing public messaging, including social media, reinforces and encourages people to install and use weather alert apps on mobile devices. *Note: WWF34 is the local repeater station call sign for the NOAA (National Oceanic and Atmospheric Administration) Weather Radio (NWR) All Hazards national emergency radio broadcasting network. The repeater was located on a tower in Oshtemo Charter Township, but was moved to a Michigan Public Safety Communication System (MPSCS) tower near Plainwell, to facilitate better signal reception from the primary NWR transmitter in Grand Rapids.*

#### **15. Action Item Description:**

**Develop & enhance community awareness of evacuation plans addressing hazardous material risks.**

- Deliverables: 1) County-wide response plan 2) Regular participation in table-top and/or on-site training exercises by KCDC participants (includes for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, stadiums, recreation areas, and other appropriate sites 3) Development of best practices recommendations 3) Dissemination of best practices recommendations
- Lead Manager Assigned: Emergency Coordinator - Kalamazoo County
- Schedule to Initiate Action: Ongoing
- Potential Sources of Technical Assistance: FEMA; EPA
- Potential Sources of Financial Assistance: EPA; Local Governments
- Priority: Medium ONGOING- NORMAL COURSE OF BUSINESS

**2021 Status Update: ONGOING.** Decision making for Evacuation and/or Shelter-in-Place orders are dependent upon the type, severity, and location of event, as well as local conditions (wind, temperature, etc.). 1<sup>st</sup> Responders and/or Incident Commander(s) make the initial determination, and adjust according to incident conditions. *See also: "Planning Considerations for Evacuation and Shelter-in-Place- Guidance for State, Local, Tribal, and Territorial Partners" (FEMA July, 2019). This is the primary source for planning principles essential to effective plan implementation.*

#### **16. Action Item Description:**

**Enhance truck traffic weight, travel, and usage restriction awareness to reduce the chances of hazardous material transportation accidents.**

- Deliverables: 1) Develop methodology for increased identification of hazardous material trafficking throughout the County, 2) Integrate and/or improve integration with existing (MDOT, Local Police Patrol, MSP, RCKC, etc.) programs of usage/enforcement, 3) Develop community awareness and action plans for public participation, 4) Develop a plan for inspection and improvement, 5) Develop recommended practices, 6) Implement recommended practices.

- Lead Manager Assigned: RCKC, Local governments
- Schedule to Initiate Action: Ongoing
- Potential Sources of Technical Assistance: RCKC; MSP; Local Railroads; MDOT; EPA; FEMA; Office of Homeland Security, Southcentral Michigan Planning Council
- Potential Sources of Financial Assistance: FEMA; MDOT, USDOT
- Priority: Medium ONGOING- NORMAL COURSE OF BUSINESS
- **2021 Status Update: ONGOING.**

#### **17. Action Item Description:**

##### **Reduce roadway/railway hazardous material incidents through training, planning, and increased preparedness (in addition to fixed site emergencies).**

- Deliverables: 1) Develop alternate and/or adjunct to ~~Young's Environmental~~ for faster and/or local HAZMAT expertise 2) Institute recruitment, training and improvement
- Lead Manager Assigned: President - Fire Chiefs Association
- Schedule to Initiate Action: Ongoing
- Potential Sources of Technical Assistance: EPA; FEMA; DOT; ~~Young's Environmental~~, KCDEH
- Potential Sources of Financial Assistance: Grants; EPA; Railroads
- Priority: Medium
- **2021 Status Update: ONGOING: Kalamazoo County has maintained a county-wide HazMat Response Team for many years. The unit is comprised of members from several Public Safety and Fire Departments. Equipment maintenance, updating, and personnel training are continuous. Responsible private-sector and/ or public-sector parties contract individually for cleanup and remediation activities.**

#### **18. Action Item Description:**

##### **Ensure integration of hazardous spill planning into KCDC activities.**

- Deliverables: 1) Involve appropriate (Railroad, Highway, HAZMAT Team, First Responders, etc.) representatives in Countywide planning/training activities. 2) Develop best practices.
- Lead Manager Assigned: Emergency Management Director - Kalamazoo County OEM
- Schedule to Initiate Action: Ongoing
- Potential Sources of Technical Assistance: KCDC; EPA; MDOT; Railroads; Hospitals
- Potential Sources of Financial Assistance: County and local governments; EPA; MSP
- Priority: Medium ONGOING- NORMAL COURSE OF BUSINESS
- **2021 Status Update: ONGOING- same as Item 17, above.**

#### **19. Action Item Description:**

##### **Install video cameras at select rail crossings to encourage voluntary compliance with traffic laws and reduce major transportation accidents.**

- Deliverables: 1) Investigate opportunities for crossing cameras, 2) Identify costs, 3) Identify liabilities, 4) Recommend options.
- Lead Manager Assigned: KCDC
- Schedule to Initiate Action: Ongoing
- Potential Sources for Technical Information: MDOT; RCKC; Police Departments; MSP; KCDC
- Potential Sources of Financial Assistance: MDOT; MSP; Railroads
- Priority: Medium
- **2021 Status Update: NOT INITIATED AT COUNTY LEVEL.** The “Federal Railroad Administration Highway-Rail Grade Crossing Safety Fact Sheet” makes no mention of or allusion to the efficacy cameras at railroad crossings. Railroad operators are responsible for level/grade-crossing safety device installation and maintenance. Some local jurisdictions have installed cameras at major intersections that include crossings (i.e., City of Kalamazoo and City of Portage), but for the most part these cameras are for surveillance only, and not enforcement. There is currently no legislative mandate for cameras at crossings in the State of Michigan.

## **20. Action Item Description:**

### **Improve design, routing, and traffic control at problem roadway areas.**

- Deliverables: 1) Investigate opportunities for improved traffic control 2) Identify costs 3) Identify liabilities 4) Recommend options (Related to “Maintain a County Road Commission in 7(b) Infrastructure Failures)
- Lead Manager Assigned: KCDC
- Schedule to Initiate Action: Ongoing
- Potential Sources for Technical Information: MDOT; RCKC; Police Departments; MSP
- Potential Sources of Financial Assistance: MDOT; MSP
- Priority: Medium (Ongoing; especially when I-94 or US131 become backed-up or are re-routed due to accidents or road conditions.)
- **2021 Status Update: ONGOING- Several major roadway projects have been undertaken on major routes, including widening, resurfacing, lighting, signage, and interchange/intersection redesign.**

## **21. Action Item Description:**

### **Conduct Railroad Inspections and Improve Designs at Problem Railway/Roadway Intersections (At-Grade Crossings, Rural Signs/Signals for RR Crossing).**

- Deliverables: 1) Investigate opportunities for improving inspections 2) Identify costs 3) Identify liabilities 4) Recommend options (Related to “Maintain a County Road Commission in 7(b) Infrastructure Failures).
- Lead Manager Assigned: KCDC Transportation Subcommittee
- Schedule to Initiate Action: Ongoing
- Potential Sources for Technical Information: MDOT; RCKC; Police Departments; MSP; KCDC
- Potential Sources of Financial Assistance: MDOT; MSP
- Priority: Medium ONGOING- NORMAL COURSE OF BUSINESS
- **2021 Status Update: SEE ITEM 19, ABOVE.**

## **MODERATE PRIORITY HAZARD-RELATED ACTIVITIES FOR KALAMAZOO COUNTY**

The following activities, although important for the long-term safety and preparedness of Kalamazoo County's residents, businesses, and quality of life, are less directly related to the hazard mitigation activities that are officially recognized by FEMA, since they tend to include "intangibles" such as the promotion of awareness among the public and relevant agencies. Their continued inclusion in this plan means that they are still valued by the county, but may best be promoted and implemented through other types of plans and programs, besides hazard mitigation planning.

### **1. Action Item Description:**

**Generate greater awareness of, and provision for, mental health services in schools, workplaces, and institutional settings.**

- Deliverables: Recommendation for how to raise awareness, e.g.: Public Information Release; Media coverage; develop or utilize existing programs for public awareness and building
- Lead Manager Assigned: PIO - MSU Extension
- Schedule to Initiate Action: Ongoing
- Potential Sources of Technical Assistance: MSU extension in cooperation with hospitals, doctors (part of KCDC)
- Potential Sources of Financial Assistance: N/A
- Priority: Moderate **ONGOING- NORMAL COURSE OF BUSINESS**

### **2. Action Item Description:**

**Maintain a Board of Public Works**

- Deliverables: 1) Provide regular infrastructure review; 2) Recommend development opportunities; 3) Provide representation in KCDC planning, training, and evaluation activities.
- Lead Manager: Assistant Administrator for Economic and Community Development
- Scheduled to Initiate Action: Ongoing
- Potential Sources of Technical Assistance: KCDC; FEMA; Office of Homeland Security
- Potential Sources of Financial Assistance: County
- Priority: Moderate- **ONGOING- NORMAL COURSE OF BUSINESS**

### **3. Action Item Description:**

**Enhance Awareness and Participation in Sabotage/Terrorism/WMD Emergency Planning Activities of the KCDC**

- Deliverables: 1) Support and/or participate in cooperative efforts towards the identification of hazards related to this action item 2) On an ongoing basis, add, change, and/or delete items from the list of hazards and mitigation strategies identified under this action item. 3) Implement and/or support, where applicable and/or appropriate, best practices, recommendations, and/or Mitigation Strategies developed or disseminated by participating representatives of the KCDC.
- Lead Manager Assigned: Signatory Agent (President, Manager, Supervisor, Secretary, etc.) representing the governmental unit (City/Township/Village/County Board) affirming and/or adopting this KCHMP
- Schedule to Initiate Action: Ongoing
- Priority: Moderate **ONGOING- NORMAL COURSE OF BUSINESS**

### **4. Action Item Description:**

**Promote an annual "Emergency Evacuation Day" for testing/evaluating site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, stadiums, recreation areas, and other appropriate sites.**

- Deliverables: 1) Public awareness campaign to promote a day of testing in-place procedures by home, business, school, etc. -- perhaps coincident with the annual KALEX training exercise. 2) Raise awareness for facilities/homes that do not have a working emergency plan.
- Lead Manager Assigned: Chairman, Local Hazard Mitigation Subcommittee - KCDC
- Schedule to Initiate Action: Ongoing
- Potential Sources of Technical Assistance: MSU Extension; KALEX Planning Committee
- Potential Sources of Financial Assistance: FEMA
- Priority: Moderate **ONGOING- NORMAL COURSE OF BUSINESS**

## **5. Action Item Description:**

### **Enhance Awareness & Participation in Earthquake Emergency Planning Activities of the KCDC**

- Deliverables: 1) Support and/or participate in cooperative efforts towards the identification of hazards related to this action item. 2) On an ongoing basis, add, change, and/or delete items from the list of hazards and mitigation strategies identified under this action item. 3) Implement and/or support, where applicable and/or appropriate, best practices, recommendations, and/or Mitigation Strategies developed or disseminated by participating representatives of the KCDC.
- Lead Manager Assigned: Signatory Agent (President, Manager, Supervisor, Secretary, etc.) representing the governmental unit (City/Township/Village/County Board) affirming and/or adopting this KCHMP
- Schedule to Initiate Action: Ongoing
- Priority: Moderate **ONGOING- NORMAL COURSE OF BUSINESS**

## **6. Action Item Description:**

### **Enhance Awareness and Participation in Subsidence Emergency Planning Activities of the KCDC**

- Deliverables: 1) Support and/or participate in cooperative efforts towards the identification of hazards related to this action item. 2) On an ongoing basis, add, change, and/or delete items from the list of hazards and mitigation strategies identified under this action item. 3) Implement and/or support, where applicable and/or appropriate, best practices, recommendations, and/or Mitigation Strategies developed or disseminated by participating representatives of the KCDC.
- Lead Manager Assigned: Signatory Agent (President, Manager, Supervisor, Secretary, etc.) representing the governmental unit (City/Township/Village/County Board) affirming and/or adopting this KCHMP
- Schedule to Initiate Action: Ongoing
- Priority: Moderate **ONGOING- NORMAL COURSE OF BUSINESS**

## **7. Action Item Description:**

### **Enhance awareness and participation in extreme temperature emergency planning activities of the KCDC.**

- Deliverables: 1) Support and/or participate in cooperative efforts towards the identification of hazards related to this action item. 2) On an ongoing basis, add, change, and/or delete items from the list of hazards and mitigation strategies identified under this action item. 3) Implement and/or support, where applicable and/or appropriate, best practices, recommendations, and/or Mitigation Strategies developed or disseminated by participating representatives of the KCDC.
- Lead Manager Assigned: Signatory Agent (President, Manager, Supervisor, Secretary, etc.) representing the governmental unit (City/Township/Village/County Board) affirming and/or adopting this KCHMP.
- Schedule to Initiate Action: Ongoing
- Priority: Moderate **ONGOING- NORMAL COURSE OF BUSINESS**

## **8. Action Item Description:**

### **Enhance awareness and participation in general winter weather emergency planning activities of the KCDC**

- Deliverables: 1) Support and/or participate in cooperative efforts towards the identification of hazards related to this action item. 2) On an ongoing basis, add, change, and/or delete items from the list of hazards and mitigation strategies identified under this action item. 3) Implement and/or support, where applicable and/or appropriate, best practices, recommendations, and/or Mitigation Strategies developed or disseminated by participating representatives of the KCDC.
- Lead Manager Assigned: Signatory Agent (President, Manager, Supervisor, Secretary, etc.) representing the governmental unit (City/Township/Village/County Board) affirming and/or adopting this KCHMP
- Schedule to Initiate Action: Ongoing
- Priority: Moderate **ONGOING- NORMAL COURSE OF BUSINESS**

## **9. Action Item Description:**

### **Enhance awareness and participation in snowstorm emergency planning activities of the KCDC.**

- Deliverables: 1) Support and/or participate in cooperative efforts towards the identification of hazards related to this action item. 2) On an ongoing basis, add, change, and/or delete items from the list of hazards and mitigation strategies identified under this action item. 3) Implement and/or support, where applicable and/or appropriate, best



practices, recommendations and/or Mitigation Strategies developed or disseminated by participating representatives of the KCDC.

- Lead Manager Assigned: Signatory Agent (President, Manager, Supervisor, Secretary, etc.) representing the governmental unit (City/Township/Village/County Board) affirming and/or adopting this KCHMP
- Schedule to Initiate Action: Ongoing
- Priority: Moderate **ONGOING- NORMAL COURSE OF BUSINESS**

#### **10. Action Item Description:**

##### **Enhance awareness and participation in riverine and urban flooding emergency planning activities of the KCDC.**

- Deliverables: 1) Support and/or participate in cooperative efforts towards the identification of hazards related to this action item. 2) On an ongoing basis, add, change, and/or delete items from the list of hazards and mitigation strategies identified under this action item. 3) Implement and/or support, where applicable and/or appropriate, best practices, recommendations and/or Mitigation Strategies developed or disseminated by participating representatives of the KCDC.
- Lead Manager Assigned: Signatory Agent (President, Manager, Supervisor, Secretary, etc.) representing the governmental unit (City/Township/Village/County Board) affirming and/or adopting this KCHMP
- Schedule to Initiate Action: Ongoing
- Priority: Moderate **ONGOING- NORMAL COURSE OF BUSINESS**

#### **11. Action Item Description:**

##### **Enhance awareness and participation in infrastructure emergency planning activities of the SEOC**

- Deliverables: 1) Support and/or participate in cooperative efforts towards the identification of hazards related to this action item. 2) On an ongoing basis, add, change, and/or delete items from the list of hazards and mitigation strategies identified under this action item. 3) Implement and/or support, where applicable and/or appropriate, best practices, recommendations, and/or Mitigation Strategies developed or disseminated by participating representatives of the KCDC.
- Lead Manager Assigned: Signatory Agent (President, Manager, Supervisor, Secretary, etc.) representing the governmental unit (City/Township/Village/County Board) affirming and/or adopting this KCHMP
- Schedule to Initiate Action: Ongoing
- Priority: Moderate **ONGOING- NORMAL COURSE OF BUSINESS**

#### **12. Action Item Description:**

##### **Provide an Educational Process and Resources for Addressing Agricultural Issues**

- Deliverables: 1) Identify County agricultural needs and opportunities, 2) Develop and deliver training and/or informational materials/programs, 3) Identify hazards affecting agriculture, 4) Provide leadership and influence in healthy agriculture, Natural Resource, Economic Development, Children and Youth programs (such as County Fair, 4-H, home economics, etc.), 5) Identify and develop best practices for related activities, 6) Participate in preparedness activities of the KCDC.
- Lead Manager Assigned: Extension Director - MSU Extension
- Schedule to Initiate Action: Ongoing
- Initial Sources of Technical Assistance: EPA
- Potential Sources of Financial Assistance: County and local governments
- Priority: Moderate **ONGOING- NORMAL COURSE OF BUSINESS**

#### **13. Action Item Description:**

##### **Enhance Awareness and Participation in Public Health Emergency Planning Activities of the KCDC**

- Deliverables: 1) Support and/or participate in cooperative efforts towards the identification of hazards related to this action item. 2) On an ongoing basis, add, change, and/or delete items from the list of hazards and mitigation strategies identified under this action item. 3) Implement and/or support, where applicable and/or appropriate, best practices, recommendations, and/or Mitigation Strategies developed or disseminated by participating representatives of the KCDC.
- Lead Manager Assigned: Signatory Agent (President, Manager, Supervisor, Secretary, etc.) representing the governmental unit (City/Township/Village/County Board) affirming and/or adopting this KCHMP

- Schedule to Initiate Action: Ongoing
- Priority: Moderate **ONGOING- NORMAL COURSE OF BUSINESS**

#### **14. Action Item Description:**

##### **Long-Term Planning That Provides More Connector Roads for Reduced Congestion of Arterial Roads.**

- Deliverables: 1) Investigate opportunities for crossing cameras, 2) Identify costs, 3) Identify liabilities, 4) Recommend options, 5) Implement Options, 6) Participate in KCDC planning, drills, and evaluation.
- Lead Manager Assigned: KC Board of Commissioners Liaison to RCKC
- Schedule to Initiate Action: Ongoing
- Potential Sources for Technical Information: MDOT; RCKC; Police Departments; MSP; KCDC
- Potential Sources of Financial Assistance: MDOT; MSP
- Priority: Moderate **ONGOING- NORMAL COURSE OF BUSINESS**

#### **15. Action Item Description:**

##### **Enhance Awareness and Participation in Transportation Accident Emergency Planning Activities of the KCDC**

- Deliverables: 1) Support and/or participate in cooperative efforts towards the identification of hazards related to this action item. 2) On an ongoing basis, add, change, and/or delete items from the list of hazards and mitigation strategies identified under this action item. 3) Implement and/or support, where applicable and/or appropriate, best practices, recommendations, and/or Mitigation Strategies developed or disseminated by participating representatives of the KCDC.
- Lead Manager Assigned: Participating local governments
- Schedule to Initiate Action: Ongoing
- Priority: Moderate **ONGOING- NORMAL COURSE OF BUSINESS**

#### **16. Action Item Description:**

##### **Document that the KCHMP considers long-term changes to the areas and entities it protects.**

- Deliverables: Referenced entries in the KCHMP
- Lead Manager Assigned: KCDC
- Schedule to Initiate: Ongoing
- Potential Sources of Technical Assistance: KCHMPC; MSP EMHSD; FEMA; County and Local governments.
- Potential Sources of Financial Assistance: FEMA; County and Local Governments, MSP EMHSD
- Priority: Moderate **ONGOING- NORMAL COURSE OF BUSINESS**

#### **17. Action Item Description:**

##### **Document that the KCHMP provide manageable future maintenance modification requirements.**

- Deliverables: Referenced entries in the KCHMP
- Lead Manager Assigned: Chairman – Kalamazoo County Hazard Mitigation Planning Committee
- Schedule to Initiate: Ongoing
- Potential Sources of Technical Assistance: KCHMPC; KCDC; MSP EMHSD; FEMA; County and Local governments.
- Potential Sources of Financial Assistance: FEMA; County and Local Governments, MSP EMHSD
- Priority: Moderate **ONGOING- NORMAL COURSE OF BUSINESS**

## Chapter 6: 2022 Mitigation Action Plan



*High-tension power lines being upgraded in Kalamazoo County in 2020. A stark visual example of mitigation in action.*

### **Introduction:**

As noted by the status update in Chapter 5 of action items for mitigation that were proposed in previous editions of the KCHMP, it should be clear that as times and technology change, so do the needs of the community and the available tools to address some of these issues. This is particularly true in our most recent history. Advances in communications and information technologies since the 2013 version of the plan are likely beyond the scope of its authors to grasp, and the pace of continuing advancements begs for a similar sea-change in how we view our immediate future.

Changes in the way our national and local leadership view and act on disaster preparedness and community resiliency, including shifts in funding and staffing priorities can also necessitate an evolution in our local approach, including in how and where we work, interact, cooperate, and, and function.

The Community Lifelines/Core Capabilities construct, which has been cited repeatedly in this updated document, includes the identification of “Core Capabilities for Incident Stabilization”. The Planning Team has decided to use a slightly modified listing of these as *Response* Core Capabilities to guide our proposed Action Items for this update, which does not incorporate the previous Action Items from the 2013 KCHMP. Here is a generalized listing of those *Response* Core Capabilities, followed by brief discussions of alternatives for mitigating existing gaps in those capabilities:

- 1) Public Awareness
- 2) Warning and Emergency Communications
- 3) Evacuation and Sheltering
- 4) Damage Assessment
- 5) Debris Management/Removal
- 6) Mass Casualty Triage and Transport
- 7) Donations and Volunteer Management
- 8) Planning, Zoning, and Code Enforcement

### **Discussing Alternatives in Addressing Response Capability Gaps**

**Public Awareness:** Kalamazoo County shares a lack of depth in this arena with many if not most other jurisdictions across the country. The most common shortfall is in cohesive and consistent messaging to the public, (and public officials) before, during, and after an incident or event. The former may be addressed by the formation of standardized policies and procedures, with dedicated personnel and resources. This should include information sharing among response agencies (i.e., Joint Information System implementation). Another key failure point in the latter is in the lack of clear understanding of the roles and responsibilities of key elected officials and senior leadership as to all phases of the disaster lifecycle: Prevention, Protection, Mitigation, Response, and Recovery. Because the elected officeholders tend to have a good deal of turnover,

there seems to be an almost institutionalized knowledge gap in this area. It was suggested by numerous discussion participants that there should be a requirement that officials who may have roles to play in the cycle should have at least a minimal understanding of NIMS and ICS. Basic-level training should be mandatory for incoming officials, as well as refresher training for incumbents. Additionally, general, and hazard-specific public awareness campaigns should be a permanent fixture of preparedness efforts. This not only informs the community as to hazard and risk, but it also establishes a “trusted voice” that the community will naturally turn to in the event of an emergency. These campaigns should be actively managed across media platforms to maintain credibility, which can be compromised when outdated or “stale” channels are left active. Staffing is an issue, and responsibilities for maintaining and updating posted information is sometimes shared or deferred out of necessity.

**Warning and Emergency Communications:** The operationalization of the Kalamazoo County Consolidated Dispatch Authority was a tremendous step in the right direction for public warning and communications in Kalamazoo County, but much more remains to be done. The County is still lagging in interoperability between agencies, and the key infrastructure to support those capabilities is incomplete. Redundancies in communications in emergencies is vital. Kalamazoo County would also be well served by taking better advantage of and leveraging emerging technologies. Expanding broadband internet access in underserved/rural communities might serve to help ameliorate the communications and warning shortfall, which is trending away from outdoor sirens. Overall, this would also enhance alternate worksite (“Work from Home”) options and expand educational opportunity access options for school-age and higher-ed students in the event of school and/or infrastructure shutdowns.

**Evacuation and Sheltering:** The County relies heavily on Non-Governmental Organizations (NGOs) for this critical component, especially the American Red Cross. The primary gap seen here is in supporting underserved communities, particularly the functional needs populations. The move towards collaborative effort between disparate NGOs with specialties in these areas can ease the burden and lead to better outcomes, both in the actual sheltering and in administrative processing of folks who might have trouble with forms and processes when under stress. Manufactured housing communities, RV resorts, and other large, multi-tenant developments could also benefit from retrofitting existing shared facilities into hardened shelters.

#### **Damage Assessment:**

Damage Assessment duties have in the past been assigned to our partners in the Amateur Radio community (primarily R.A.C.E.S.). Unfortunately, membership numbers have been in decline with these groups for many years. It is time we explored the leveraging of different mobile technologies and perhaps “crowd-sourcing” of this function.

#### **Debris Management/Removal:**

This capability has not been truly tested locally beyond the normal scope of straight-line wind events in many years. Gaps are largely unknown until those abilities are tested live or in exercises. Other jurisdictions have had great success with formalizing “on-call” heavy equipment agreements (see Kent County Heavy Equipment Consortium as example). Rental companies as well as private-sector contractors are a vital resource to fill gaps. It is recommended that future exercises be scenario-based so that they include both damage assessment and debris removal capabilities.

#### **Mass Casualty Triage and Transport:**

A mass casualty incident (MCI) is defined as “an event that overwhelms the local healthcare system, where the number of casualties vastly exceeds the local resources and capabilities in a short period of time.” Kalamazoo County has plans in place for Mass Casualty/Mass Fatality Incidents (MCIs). These plans generally follow and/or align with the protocols outlined by the MDHHS Bureau of EMS, Trauma, and Preparedness (BETP), which can be viewed at:

<http://www.kzoomedcontrol.com/protocols.html>

Additional protocols specific to the 5<sup>th</sup> District Medical Response Coalition, and the Kalamazoo County Medical Control Authority are maintained and administered by those entities. Capability gaps for these plans are general, and not unique. Staffing, exercising, and the ongoing evaluation of any high-impact, low-likelihood

contingency plans is always a challenge. Establishment of a regional Incident Management Team (IMT) is highly recommended to help address the shortfalls.

The addition and expansion of the Western Michigan University School of Medicine (WMED) has allowed for an expansion of fatality management capabilities, both in expanded morgue capacity, as well as staffing. WMED also trains med-students in disaster medicine. This provides a revolving, ready pool of personnel that can be called upon in a disaster event. Exercising and evaluation of that resource should be integrated with other planned exercises and drills.

Additionally, the 5DMRC plan does not directly address “MCI Multipliers: “The extent of an MCI is not solely dependent on the total number of created potential patients but is exacerbated by other complicating factors coined “MCI Multipliers.” MCI Multipliers can range from limited scene accessibility, biohazard contamination, self-deploying responders not equipped or experienced for the current scenario, lack of on-scene or surrounding hospital resources, etc. A.J. Heightman, Editor and Chief of *JEMS* developed a table of “Multipliers that Affect MCI’s” that should be identified and managed as early as possible in the course of an MCI...” (*NIH/NCBI pub. NBK482373*). Among the multipliers identified by Heightman are: “6. Staffing levels” and “12. Hospital backlogs, closures, or lack of resources or capabilities”. We have learned many lessons during the CoVID pandemic, not the least of which is that assumptions and plans can be fleeting things, and we would be wise to incorporate exercising multi-faceted, simultaneous failures and hidden challenges when we develop training scenarios.

**Donations and Volunteer Management:** Volunteers have played an essential role in disaster response throughout history, and Kalamazoo County is blessed with many organizations that have capabilities and personnel to lend a hand in times of emergency. Coordinating those responses is a critical necessity. The Kalamazoo County Response Consortium serves as a coordinating agency for the county’s VOADs (Volunteer Organizations Aiding in Disaster). Among the responsibilities delegated by Emergency Management to the KCRC is that of donations and volunteer management in the event of a disaster or catastrophic event. Key capability gaps in this arena are effective leadership, vision, and on-the-ground surge staffing for any major incident. The KCRC should identify staffing sources and facility and equipment agreements in advance and have a strategic messaging plan in place to notify the public and news media as to what the needs and procedures are. Oftentimes material donations pour in faster than they can be processed, and the logistical pipeline becomes overwhelmed with unwanted or unneeded items.

- “Many voluntary organizations have their own internal systems for donations management for both cash and in-kind donations. The National Donations Management Network (NDMN) and the Multi- Agency Warehouse (MAW) provide systems to address receiving, transporting, warehousing, and distributing donations during disasters.”- *FEMA Emergency Management Institute*

Another key issue often seen during disasters is that of “spontaneous” or “unaffiliated” volunteers. Armed with good intentions, this key resource needs to be managed to be truly effective.

- “Volunteer credentialing is a persistent issue during disasters that lacks an easy solution to questions of how States and communities ensure safety and regulate access to impacted areas. There is no national standard for volunteer credentialing. Each voluntary organization will establish its own criteria for volunteer credentialing and certification. Voluntary organizations are generally aware of credentialing issues including training, certification, criminal background checks, privacy, and liability.”-*FEMA Emergency Management Institute*

Other services may also be provided by VOADs.

- Disaster Mental Health, Emotional and Spiritual Care
- Community Outreach
- Resource Coordination
- Clean Up/Muckout
- Volunteer Management
- Disaster Casework

- Damage Management
- Disaster Case Management
- Relocation Services

With all of the possibilities and challenges involved, OEM needs to set standards for the KCRC as to training, performance, credentialing, and standard operating procedures well in advance of any event.

**Planning, Zoning, and Code Enforcement:** Integration of hazard mitigation planning with local authorities that have jurisdictional oversight of these critical components is perhaps the simplest and most effective up-front mitigation action for reducing incidences of repetitive loss. Simply preventing residences and commercial facilities from locating in known flood areas in the first place avoids future loss, but many other agencies can and should be included in the conversation. These include Public Works, Road Commissions, Parks and Recreation, permitting authorities, and others. Bringing their thought processes in planning and forecasting more into line with the mitigation mindset and goals of the Mitigation Plan can help identify areas of overlapping interest or conflict early on and facilitate resolution and unify progress. Kalamazoo County OEM does not currently have regular interaction with these authorities outside of their voluntary participation in monthly meetings and scheduled exercises with the KCDPC, primarily due to lack of staffing on both sides. This shortcoming needs to be addressed through formalizing productive interactions with these departments, boards, and commissions having responsibility for planning and budgeting for future development and current enforcement.

In addition, the concepts, goals, and strategies of the KCHMP will be integrated into the various elements of the County Master Plan as that plan is amended. This is a recognition that hazard mitigation is not a separate, optional activity, but rather a necessary activity that should be addressed in the Master Plan.

When adoption of the updated KCHMP is requested at sub-jurisdictional level, the resolution language will state that as part of the adoption, these local bodies agree to consider how their future actions will take the KCHMP into consideration, and align zoning, codes, and development decisions with hazard mitigation in mind. When major issues are to be deliberated, planning team members and/or the local primary contacts will discuss how the integration of mitigation efforts will be incorporated.



# Annex A: City of Kalamazoo- Portage Creek Flood Control Project

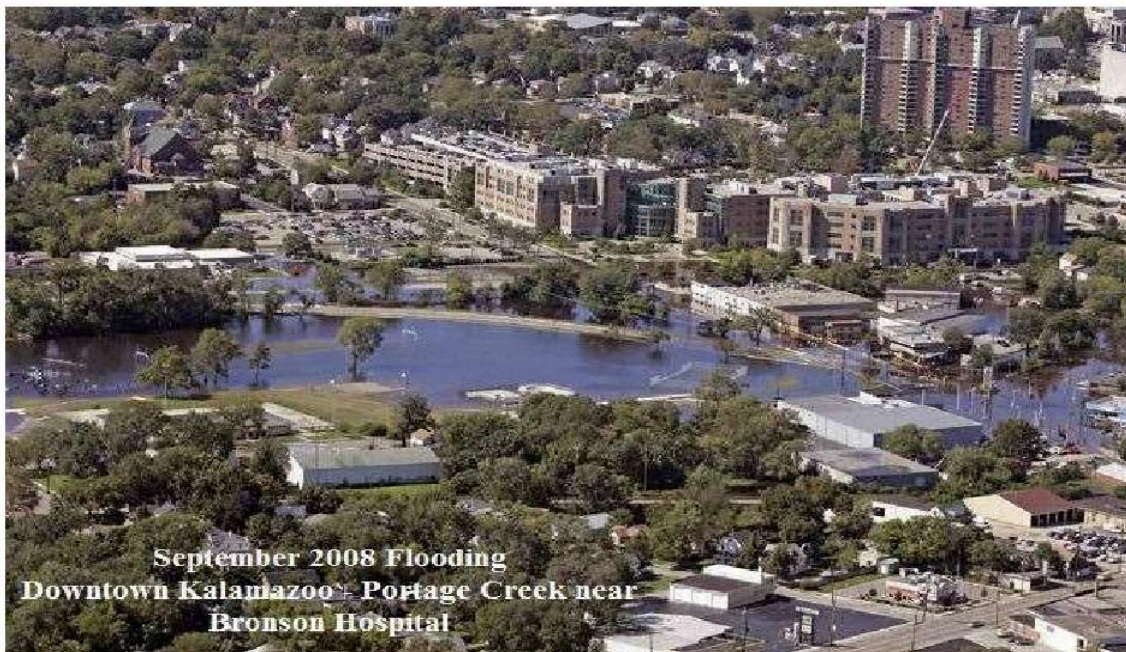
## City of Kalamazoo - Portage Creek Flood By-Pass and Closure Project

### Executive Summary

A densely populated urbanized area within the City of Kalamazoo experiences high occurrence rates of riverine and backwater flooding along the Portage Creek impacting private property, transportation, utilities, and access to the region's only level one trauma center (Bronson Hospital). Portage creek capacity deficiencies and backwater events from the Kalamazoo River contribute to the flooding events.

In 2018 the City of Kalamazoo partnered with the National Weather Service (NWS), United States Geological Survey (USGS) and the United States Army Corps of Engineers (USACE) on a joint Flood Inundation Mapping (FIM) project. Bathymetric surveys on the Portage Creek, Kalamazoo River and adjoining floodplains were conducted, survey data was then used to create a two-dimensional Hydraulic Engineering Center River Analysis (HEC-RAS) model. Historic, real time and simulated streamflow discharge gage data obtained from USGS gage stations are then used to tune and calibrate the model. The final phase of the FIM project seeks to integrate HEC-RAS and USGS streamflow data into GIS layers to provide the public with real-time parcel by parcel flood inundation predictions linked directly to NWS hydrologic prediction center forecasts.

Utilizing the joint FIM project deliverables, City of Kalamazoo developed alternatives seeking to protect the Portage Creek floodplain area from inundation.



The Portage Creek Flood By-Pass and Closure project proposes to utilize a tunnel to direct excess stream flows to a pump complex and into the Kalamazoo River, a closure complex on the confluence with the Kalamazoo River to prevent backwater flooding and a pump complex at the closure complex to convey baseflow during closure up into the Kalamazoo River.

## Addressed Hazards

### PRIMARY HAZARD

Inland Flooding

## Community Lifelines

### PRIMARY LIFELINE

Safety & Security  
Food, Water, Sheltering  
Health & Medical  
Transportation  
Energy (Power & Fuel)  
Communications

## Details

### Project Owner

City of Kalamazoo

### Type of Project

Flood Mitigation Infrastructure

### Area of Impact

Potential to benefit entire City of Kalamazoo, MI (population 73,598 in 2020), Kalamazoo County (pop. 261,670 in 2020) and Southwest Michigan regional area (pop. 782,230)

## \$ Cost

### Total Project Cost

Preliminary estimate of base alternative \$110 million

## Funding Sources (Potential)

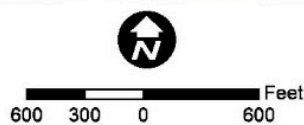
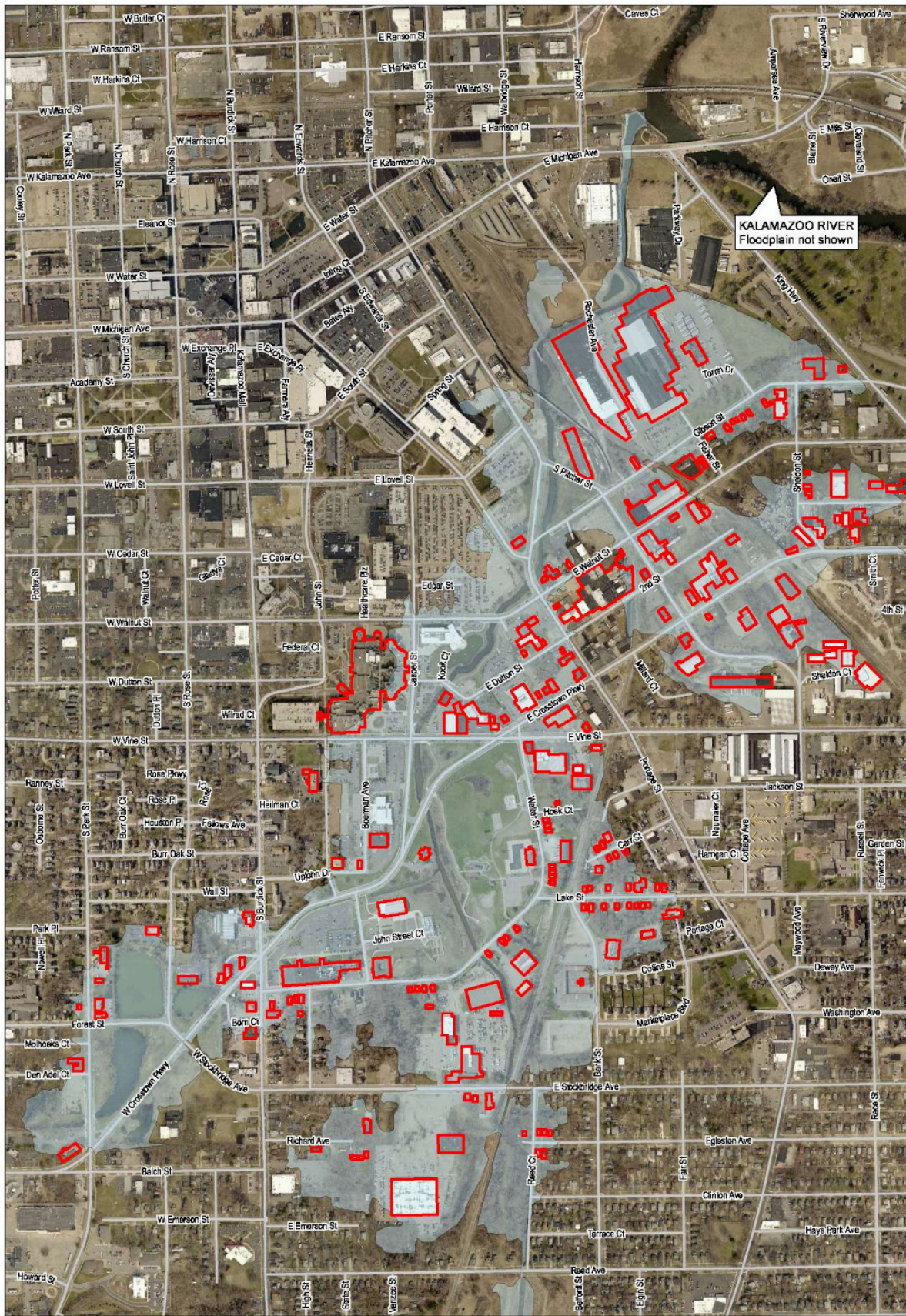
### Federal Funding

FEMA Pre-Disaster Mitigation Funding  
FEMA Hazard Mitigation Grant Program  
USACE Section 205-Flood Damage Reduction Project

### Non-Federal Funding

State of Michigan – Clean Water State Revolving Loan Fund (CWSRF)  
City of Kalamazoo – General obligation bonds  
City of Kalamazoo – Revenue bonds, stormwater utility  
Flood control district – special assessment district  
Philanthropic resources





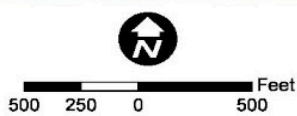
#### LEGEND

- Existing 2021 100-Year Floodplain
- Flooding Structures in 100-yr Floodplain

CITY OF KALAMAZOO  
KALAMAZOO COUNTY, MI  
**PORTAGE CREEK  
100-YEAR FLOODPLAIN**  
July 2021  
Prein&Newhof  
2180237

FIGURE 1





**LEGEND**

- Proposed Structures
- Proposed Pipe
- Forcemain
- Gravity Tunnel

CITY OF KALAMAZOO  
KALAMAZOO COUNTY, MI

**PORTAGE CREEK  
BYPASS LAYOUT**

July 2021

Prein&Newhof

2100227

FIGURE 2



TABLE 1

City of Kalamazoo  
Portage Creek Flood Analysis

| <u>100 yr Flood</u>                                        | Existing       | Existing minus<br>400 (cfs) | Existing minus<br>500 (cfs) | Existing minus<br>600 (cfs) |
|------------------------------------------------------------|----------------|-----------------------------|-----------------------------|-----------------------------|
| # of Flooded Buildings                                     | 175            | 37                          | 26                          | 0                           |
| Average Depth of Flooding (ft)                             | 2.09           | 1.34                        | 1.14                        | NA                          |
| Average Area of Flooded Building (sf)                      | 8,421          | 8,180                       | 7,503                       | NA                          |
| Acquisition Cost (Total Acquisition Cost of Flooded Bldgs) | \$ 55,700,000  | \$ 12,900,000               | \$ 8,800,000                | \$ -                        |
| Acquisition Benefit (Reduction in flood damage costs)      | \$ 572,600,000 | \$ 108,700,000              | \$ 72,200,000               | \$ -                        |
| Acquisition Benefit-Cost Ratio                             | 10.28          | 8.43                        | 8.2                         | 0                           |
| Diversion Cost (Total Cost of Diversion Project)           |                | \$ 107,000,000              | \$ 107,000,000              | \$ 107,000,000              |
| Diversion Benefit (Reduction in flood damage costs)        |                | \$ 463,900,000              | \$ 500,400,000              | \$ 572,600,000              |
| Diversion Benefit-Cost Ratio                               |                | \$ 4.34                     | \$ 4.68                     | \$ 5.35                     |

Note: 1. Cost is estimated to be twice the State Equalized Value.

2. Acquisition Benefit from FEMA CBA Spreadsheet.

3. CBA based on average structure acquired & average depth of flooding.

4. Based on a 100-year life cycle

5. Acquisition Benefit doesn't account for loss of tax base.

6. Diversion Project Benefit doesn't account for increases in SEV.

7. Diversion Project Cost doesn't account for 100 years of operation and maintenance

Process:

1. Identify floodplain boundaries for existing, ex minus 400cfs, ex minus 500 cfs & ex minus 600 cfs.
2. Identify structures that are flooded by each conditions.
3. Identify first floor elevation of each flooded structure.
4. Identify square feet of area of each flood structure.
5. Identify SEV for each flooded structure.
6. Average depth of flooding, area of structure and SEV for each condition.
7. Perform BCA for each condition.

**Appendix A****Estimate of Probable Cost**

Owner:

City of Kalamazoo

Project Title:

Portage Creek Bypass

Date:

July 2021

Project #:

2170680

| Item No.                     | Description                            | Amount               |
|------------------------------|----------------------------------------|----------------------|
| 1                            | Floodgate Pump Station                 | \$10,345,000         |
| 2                            | Mills Pump Station                     | \$13,360,000         |
| 3                            | Concrete Inlet to Tunnel               | \$3,220,000          |
| 4                            | 9' Diameter Tunnel                     | \$50,000,000         |
| 5                            | 60" Diameter Forcemain                 | \$300,000            |
| 6                            | Inflatable Dam, 15' height x 60' width | \$2,200,000          |
| 7                            | Project Permitting                     | \$100,000            |
| 8                            | Property Acquisition                   | \$2,000,000          |
| 9                            | Pavement                               | \$100,000            |
| 10                           | Traffic Control                        | \$50,000             |
| Total Construction Estimate: |                                        | <b>\$81,675,000</b>  |
| Engineering (20%):           |                                        | <b>\$16,335,000</b>  |
| Contingency (10%):           |                                        | <b>\$8,168,000</b>   |
| Total Project Cost:          |                                        | <b>\$106,178,000</b> |



# Annex B: City of Kalamazoo- Northside Stormwater Relief Project

## City of Kalamazoo – Northside Stormwater Relief Project

### Executive Summary

The City of Kalamazoo Northside Neighborhood is home to approximately 10,000 residents situated west of the Kalamazoo River and directly north of downtown, many of whom are overburdened, underserved, and experiencing environmental justice inequities. Developed land within this neighborhood sits above the base flood elevation. Heavy organic soils, high groundwater table and storm sewer capacity deficiencies contribute to non-riverine urban flooding.

Existing stormwater ordinances now prohibit impervious development discharges above predevelopment conditions. The City of Kalamazoo Sustainability plan emphasizes green infrastructure alternatives and resiliency in design. Neighborhood organizational leaders teach and train citizen entrepreneurs in green infrastructure strategies such as rain gardens.

Both acute and chronic changes over time to storm intensity, duration and location have contributed to increased inundation events. Non-riverine urban flooding continues to impact private property, residents, and quality of life within the Northside neighborhood.

The Northside Stormwater Relief Project seeks to construct large diameter relief, outlet, and intercepting storm sewers to provide a resilient approach to combat non-riverine urban flooding occurrences.

### Addressed Hazards

#### PRIMARY HAZARD

Inland Flooding

Non-Riverine Urban Flooding

### Community Lifelines

#### PRIMARY LIFELINE

Safety & Security

Food, Water, Sheltering

Health & Medical

Transportation

### Details

#### Project Owner

City of Kalamazoo

#### Type of Project

Flood Mitigation Infrastructure

#### Area of Impact

Direct benefit to Northside Neighborhood (population 10,000) Potential to benefit entire City of Kalamazoo, MI (pop 73,598 in 2020)

## **\$ Cost**

### **Total Project Cost**

Preliminary estimate of alternatives \$20 million

## **Funding Sources (Potential)**

### **Federal Funding**

FEMA Pre-Disaster Mitigation Funding

FEMA Hazard Mitigation Grant Program

### **Non-Federal Funding**

State of Michigan – Clean Water State Revolving Loan Fund (CWSRF)

City of Kalamazoo – General obligation bonds

City of Kalamazoo – Revenue bonds, stormwater utility

Philanthropic resources

## **Benefits**

### **Primary**

- Protects private and public property, transportation, and utilities
- Protects Emergency Response facilities
- Reduces physical damage to buildings and infrastructure from flood events
- Reduces loss of service to infrastructure, especially roads and other transportation systems
- Avoids residential displacement/reduced short-term shelter needs

### **Secondary**

- Reduces loss of function to non-residential structures and their associated tenants (businesses and other organizations) due to road closures caused by flood events
- Decreases need for emergency response during flood events
- Reduces surge infiltration demand of sanitary sewer system and POTW

## **Partnerships**

City of Kalamazoo

Kalamazoo County Sheriff's Department – Office of Emergency Management

Northside Association for Community Development (NACD)

## **Project Timeline**

### **Status**

Hydraulic Analysis – May 2021

Flood mitigation alternative model development and evaluation 2021 – 2022

Selected alternative planning and preliminary design 2023 and beyond (unfunded)

Future phases of the project remain unfunded, project construction date is unknown

## **Additional Resources**

Hydraulic Analysis Report and Alternative Feasibility

<https://www.kalamazoo-city.org/patersonstudy/>

# Annex C: City of Kalamazoo – Water and Wastewater Generator Project

## Executive Summary

The City of Kalamazoo would like to add generators to all sites currently without backup generators in the event of power outages. This will allow the critical infrastructure to continue to operate, keep the residents of Kalamazoo and neighboring cities with running water as well as keep the flow of wastewater to the Kalamazoo Water Reclamation Plant (KWRP). This project will serve a large population within Kalamazoo County and provide a huge benefit to all that have water and wastewater utility services.

The City of Kalamazoo water infrastructure services a population of over 196,000 residents. They treat and provide potable water from the wells within Kalamazoo County. The City of Kalamazoo Water Reclamation Plant services a population of over 192,000 residents. KWRP provides a service to treat the wastewater and return clean water back into the Kalamazoo River. The wastewater lift station infrastructure assists in delivering wastewater to be treated at KWRP. Wastewater lift stations service a population size of over 11,000 residents.

## Hazards

Residents without Potable Water

Possible Loss of Containment of Wastewater/Contamination of Waterways and Groundwater

Reduced Treatment to Local Water Sources

## Community Lifelines

### PRIMARY LIFELINES

Safety & Security

Food, Water, Sheltering

Health & Medical

## Details

**Project Owner** - City of Kalamazoo

**Type of Project** - Hazard Mitigation

**Area of Impact** - Direct benefit to residents within the City of Kalamazoo and Customer Communities (population 192,000 to 196,000 in 2021)

## Project Cost

Water Station Infrastructure – Estimated \$12,570,000

Lift Station Infrastructure – Estimated \$2,020,000

KWRP Infrastructure – Estimated \$3,024,500

Total Project Cost: \$17,614,500

## Funding Sources (Potential)

### Federal Funding

FEMA Hazard Mitigation Grant Program

FEMA Pre-Disaster Mitigation Program (BRIC)

### Non-Federal Funding

City of Kalamazoo

## Benefits

### Primary

- Provides uninterrupted potable water to residents using public water service
- Provides uninterrupted wastewater flow to be treated at KWRP
- Reduces need for potential minimal treatment within KWRP
- Ensures water needs of the fire department are available
- Ensures hospitals are provided with water
- Ensures the sewer systems continue to flow

### Secondary

- Reduce potential sewer backups
- Decreases the need for emergency response during a power outage
- Reduces costs with personnel and equipment problems associated with extended power outages

## Benefit Cost Analysis (see attached)

Water Station Infrastructure: 2.38

Lift Station Infrastructure: 0.19

KWRP Infrastructure: 5.92

Overall Benefit Cost Analysis: 2.71

## Partnerships

City of Kalamazoo

Kalamazoo County Sheriff's Department – Office of Emergency Management

FEMA BCA Calculator - <https://bcaofficeaddin-prod.azurewebsites.net/projects>

|  <b>FEMA</b> Benefit-Cost Calculator<br><small>FEMA U.S. Department of Homeland Security Logo   July 2021   228.2010   Release Notes</small> |                           |               |               |               |           |                                                                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|---------------|---------------|---------------|-----------|---------------------------------------------------------------------------------------|
| + Add Project   ← Import Projects   → Export Projects   🔄 Batch Processing   🗑 Delete Projects                                                                                                                                  |                           |               |               |               |           |                                                                                       |
| Select                                                                                                                                                                                                                          | Project Title ▼           | County, State | Benefits (B)  | Costs (C)     | BCR (B/C) | Copy                                                                                  |
| <input checked="" type="checkbox"/>                                                                                                                                                                                             | Lift Stations Project     | Kalamazoo, MI | \$ 115,811    | \$ 2,226,712  | 0.19      |  |
| <input checked="" type="checkbox"/>                                                                                                                                                                                             | Treatment Plant Generator | Kalamazoo, MI | \$ 18,075,354 | \$ 3,055,507  | 5.92      |  |
| <input checked="" type="checkbox"/>                                                                                                                                                                                             | Water Station Project     | Kalamazoo, MI | \$ 30,276,958 | \$ 12,735,370 | 2.38      |  |
| TOTAL (SELECTED)                                                                                                                                                                                                                |                           |               | \$ 48,768,123 | \$ 18,017,569 | 2.71      |                                                                                       |
| TOTAL                                                                                                                                                                                                                           |                           |               | \$ 48,768,123 | \$ 18,017,569 | 2.71      |                                                                                       |

 View Case Studies



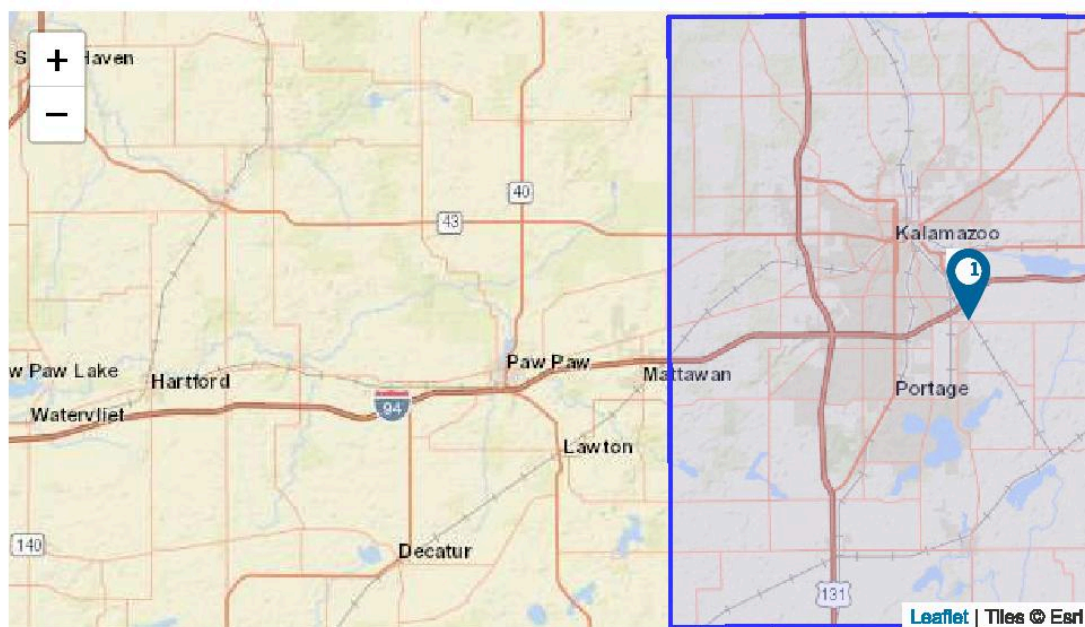
FEMA

## Benefit-Cost Calculator

V.6.0 (Build 20211228.2010 | Release Notes)

## Benefit-Cost Analysis

Project Name: Water Station Project



| Map<br>Marker<br>▲      | Mitigation Title                      | Property<br>Type | Hazard                          | Benefits (B)         | Costs (C)            | BCR<br>(B/C) |
|-------------------------|---------------------------------------|------------------|---------------------------------|----------------------|----------------------|--------------|
| 1                       | Other @ Kalamazoo County,<br>Michigan |                  | DFA - Infrastructure<br>Failure | \$ 30,276,958        | \$ 12,735,370        | 2.38         |
| <b>TOTAL (SELECTED)</b> |                                       |                  |                                 | <b>\$ 30,276,958</b> | <b>\$ 12,735,370</b> | <b>2.38</b>  |
| <b>TOTAL</b>            |                                       |                  |                                 | <b>\$ 30,276,958</b> | <b>\$ 12,735,370</b> | <b>2.38</b>  |



## Property Configuration

|                                |                                    |
|--------------------------------|------------------------------------|
| <b>Property Title:</b>         | Other @ Kalamazoo County, Michigan |
| <b>Property Location:</b>      | 49001, Kalamazoo, Michigan         |
| <b>Property Coordinates:</b>   | 42.2454385, -85.5311675            |
| <b>Hazard Type:</b>            | Infrastructure Failure             |
| <b>Mitigation Action Type:</b> | Other                              |
| <b>Property Type:</b>          | Utilities                          |
| <b>Analysis Method Type:</b>   | Historical Damages                 |

## Cost Estimation

Other @ Kalamazoo County, Michigan

|                                     |                     |
|-------------------------------------|---------------------|
| <b>Project Useful Life (years):</b> | 19                  |
| <b>Project Cost:</b>                | \$12,570,000        |
| <b>Number of Maintenance Years:</b> | 19 Use Default: Yes |
| <b>Annual Maintenance Cost:</b>     | \$16,000            |

## Damage Analysis Parameters - Damage Frequency Assessment

Other @ Kalamazoo County, Michigan

|                                    |                     |
|------------------------------------|---------------------|
| <b>Year of Analysis Conducted:</b> | 2022                |
| <b>Year Property was Built:</b>    | 0                   |
| <b>Analysis Duration:</b>          | 10 Use Default: Yes |

## Utilities Properties

Other @ Kalamazoo County, Michigan

|                                                  |                        |
|--------------------------------------------------|------------------------|
| <b>Type of Service:</b>                          | Potable Water          |
| <b>Number of Customers Served:</b>               | 196,292                |
| <b>Value of Unit of Service (\$/person/day):</b> | \$114 Use Default: Yes |
| <b>Total Value of Service Per Day (\$/day):</b>  | \$22,377,288           |

## Historical Damages Before Mitigation

Other @ Kalamazoo County, Michigan

| Damage Year | Recurrence Interval (years) | POTABLE WATER | OPTIONAL DAMAGES |                 |                 | VOLUNTEER COSTS      |                | TOTAL        |                  |                       |
|-------------|-----------------------------|---------------|------------------|-----------------|-----------------|----------------------|----------------|--------------|------------------|-----------------------|
|             |                             | Impact (days) | Category 1 (\$)  | Category 2 (\$) | Category 3 (\$) | Number of Volunteers | Number of Days | Damages (\$) | Current Dollars? | Inflated Damages (\$) |
| 2021        | 0                           | 1.44          | 0                | 0               | 0               | 0                    | 0              | 32,223,295   | No               | 32,223,295            |
| 2020        | 0                           | 0             | 0                | 0               | 0               | 0                    | 0              | 0            | No               | 0                     |
| 2019        | 0                           | 0             | 0                | 0               | 0               | 0                    | 0              | 0            | No               | 0                     |



### Annualized Damages Before Mitigation

Other @ Kalamazoo County, Michigan

| Annualized Recurrence Interval (years) | Damages and Losses (\$)     | Annualized Damages and Losses (\$)     |
|----------------------------------------|-----------------------------|----------------------------------------|
| 11                                     | 32,223,295                  | 2,929,387                              |
|                                        | Sum Damages and Losses (\$) | Sum Annualized Damages and Losses (\$) |
|                                        | 32,223,295                  | 2,929,387                              |

### Expected Damages After Mitigation

Other @ Kalamazoo County, Michigan

|                             | POTABLE WATER | OPTIONAL DAMAGES |                 |                 | VOLUNTEER COSTS      |                | TOTAL        |
|-----------------------------|---------------|------------------|-----------------|-----------------|----------------------|----------------|--------------|
| Recurrence Interval (years) | Impact (days) | Category 1 (\$)  | Category 2 (\$) | Category 3 (\$) | Number of Volunteers | Number of Days | Damages (\$) |
| 0                           | 0             | 0                | 0               | 0               | 0                    | 0              | 0            |

### Annualized Damages After Mitigation

Other @ Kalamazoo County, Michigan

| Annualized Recurrence Interval (years) | Damages and Losses (\$)     | Annualized Damages and Losses (\$)     |
|----------------------------------------|-----------------------------|----------------------------------------|
|                                        | Sum Damages and Losses (\$) | Sum Annualized Damages and Losses (\$) |
|                                        | 0                           | 0                                      |

### Benefits-Costs Summary

Other @ Kalamazoo County, Michigan

|                                                |              |
|------------------------------------------------|--------------|
| <b>Total Standard Mitigation Benefits:</b>     | \$30,276,958 |
| <b>Total Social Benefits:</b>                  | \$0          |
| <b>Total Mitigation Project Benefits:</b>      | \$30,276,958 |
| <b>Total Mitigation Project Cost:</b>          | \$12,735,370 |
| <b>Benefit Cost Ratio - Standard:</b>          | 2.38         |
| <b>Benefit Cost Ratio - Standard + Social:</b> | 2.38         |



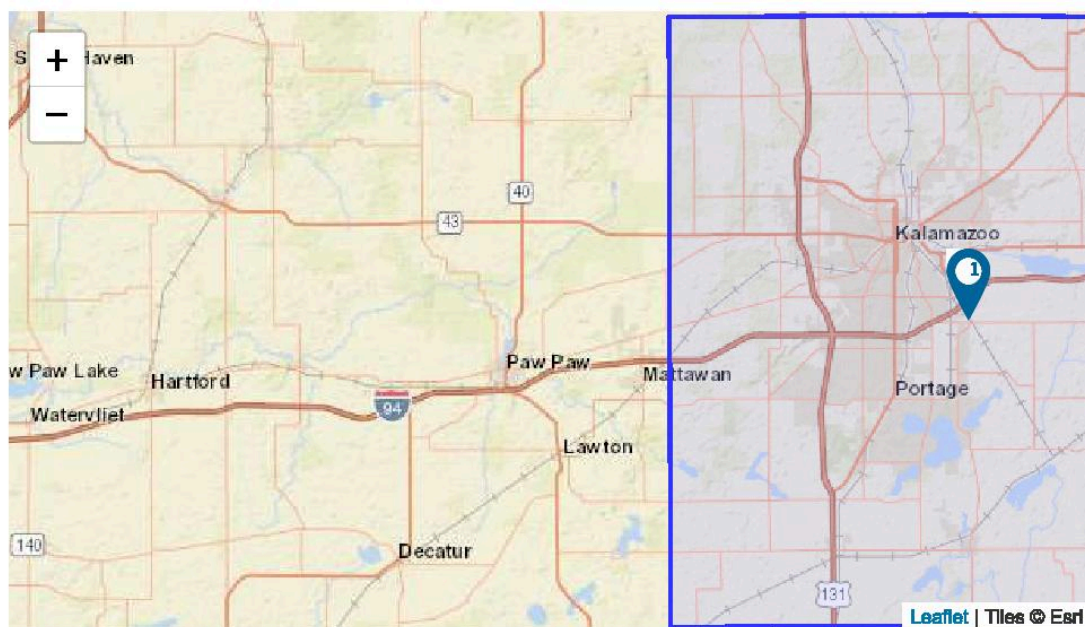
FEMA

## Benefit-Cost Calculator

V.6.0 (Build 20211228.2010 | Release Notes)

## Benefit-Cost Analysis

Project Name: Lift Stations Project



| Map<br>Marker<br>▲      | Mitigation Title                      | Property<br>Type | Hazard                          | Benefits (B)      | Costs (C)           | BCR<br>(B/C) |
|-------------------------|---------------------------------------|------------------|---------------------------------|-------------------|---------------------|--------------|
| 1                       | Other @ Kalamazoo County,<br>Michigan |                  | DFA - Infrastructure<br>Failure | \$ 415,811        | \$ 2,226,712        | 0.19         |
| <b>TOTAL (SELECTED)</b> |                                       |                  |                                 | <b>\$ 415,811</b> | <b>\$ 2,226,712</b> | <b>0.19</b>  |
| <b>TOTAL</b>            |                                       |                  |                                 | <b>\$ 415,811</b> | <b>\$ 2,226,712</b> | <b>0.19</b>  |

## Property Configuration

|                         |                                    |
|-------------------------|------------------------------------|
| Property Title:         | Other @ Kalamazoo County, Michigan |
| Property Location:      | 49001, Kalamazoo, Michigan         |
| Property Coordinates:   | 42.2454385, -85.5311675            |
| Hazard Type:            | Infrastructure Failure             |
| Mitigation Action Type: | Other                              |
| Property Type:          | Utilities                          |
| Analysis Method Type:   | Historical Damages                 |

## Cost Estimation

Other @ Kalamazoo County, Michigan

|                              |                     |
|------------------------------|---------------------|
| Project Useful Life (years): | 19                  |
| Project Cost:                | \$2,020,000         |
| Number of Maintenance Years: | 19 Use Default: Yes |
| Annual Maintenance Cost:     | \$20,000            |

## Damage Analysis Parameters - Damage Frequency Assessment

Other @ Kalamazoo County, Michigan

|                             |                     |
|-----------------------------|---------------------|
| Year of Analysis Conducted: | 2022                |
| Year Property was Built:    | 0                   |
| Analysis Duration:          | 10 Use Default: Yes |

## Utilities Properties

Other @ Kalamazoo County, Michigan

|                                           |                       |
|-------------------------------------------|-----------------------|
| Type of Service:                          | Wastewater            |
| Number of Customers Served:               | 5,450                 |
| Value of Unit of Service (\$/person/day): | \$58 Use Default: Yes |
| Total Value of Service Per Day (\$/day):  | \$316,100             |

## Historical Damages Before Mitigation

Other @ Kalamazoo County, Michigan

| Damage Year | Recurrence Interval (years) | WASTEWATER    | OPTIONAL DAMAGES |                 |                 | VOLUNTEER COSTS      |                | TOTAL        |                  |                       |
|-------------|-----------------------------|---------------|------------------|-----------------|-----------------|----------------------|----------------|--------------|------------------|-----------------------|
|             |                             | Impact (days) | Category 1 (\$)  | Category 2 (\$) | Category 3 (\$) | Number of Volunteers | Number of Days | Damages (\$) | Current Dollars? | Inflated Damages (\$) |
| 2021        | 0                           | 14            | 0                | 0               | 0               | 0                    | 0              | 442,540      | No               | 442,540               |
| 2020        | 0                           | 0             | 0                | 0               | 0               | 0                    | 0              | 0            | No               | 0                     |
| 2019        | 0                           | 0             | 0                | 0               | 0               | 0                    | 0              | 0            | No               | 0                     |

### Annualized Damages Before Mitigation

Other @ Kalamazoo County, Michigan

| Annualized Recurrence Interval (years) | Damages and Losses (\$)     | Annualized Damages and Losses (\$)     |
|----------------------------------------|-----------------------------|----------------------------------------|
| 11                                     | 442,540                     | 40,231                                 |
|                                        | Sum Damages and Losses (\$) | Sum Annualized Damages and Losses (\$) |
|                                        | 442,540                     | 40,231                                 |

### Expected Damages After Mitigation

Other @ Kalamazoo County, Michigan

|                             | WASTEWATER    | OPTIONAL DAMAGES |                 |                 | VOLUNTEER COSTS      |                | TOTAL        |
|-----------------------------|---------------|------------------|-----------------|-----------------|----------------------|----------------|--------------|
| Recurrence Interval (years) | Impact (days) | Category 1 (\$)  | Category 2 (\$) | Category 3 (\$) | Number of Volunteers | Number of Days | Damages (\$) |
| 0                           | 0             | 0                | 0               | 0               | 0                    | 0              | 0            |

### Annualized Damages After Mitigation

Other @ Kalamazoo County, Michigan

| Annualized Recurrence Interval (years) | Damages and Losses (\$)     | Annualized Damages and Losses (\$)     |
|----------------------------------------|-----------------------------|----------------------------------------|
|                                        | Sum Damages and Losses (\$) | Sum Annualized Damages and Losses (\$) |
|                                        | 0                           | 0                                      |

### Benefits-Costs Summary

Other @ Kalamazoo County, Michigan

|                                                |             |
|------------------------------------------------|-------------|
| <b>Total Standard Mitigation Benefits:</b>     | \$415,811   |
| <b>Total Social Benefits:</b>                  | \$0         |
| <b>Total Mitigation Project Benefits:</b>      | \$415,811   |
| <b>Total Mitigation Project Cost:</b>          | \$2,226,712 |
| <b>Benefit Cost Ratio - Standard:</b>          | 0.19        |
| <b>Benefit Cost Ratio - Standard + Social:</b> | 0.19        |



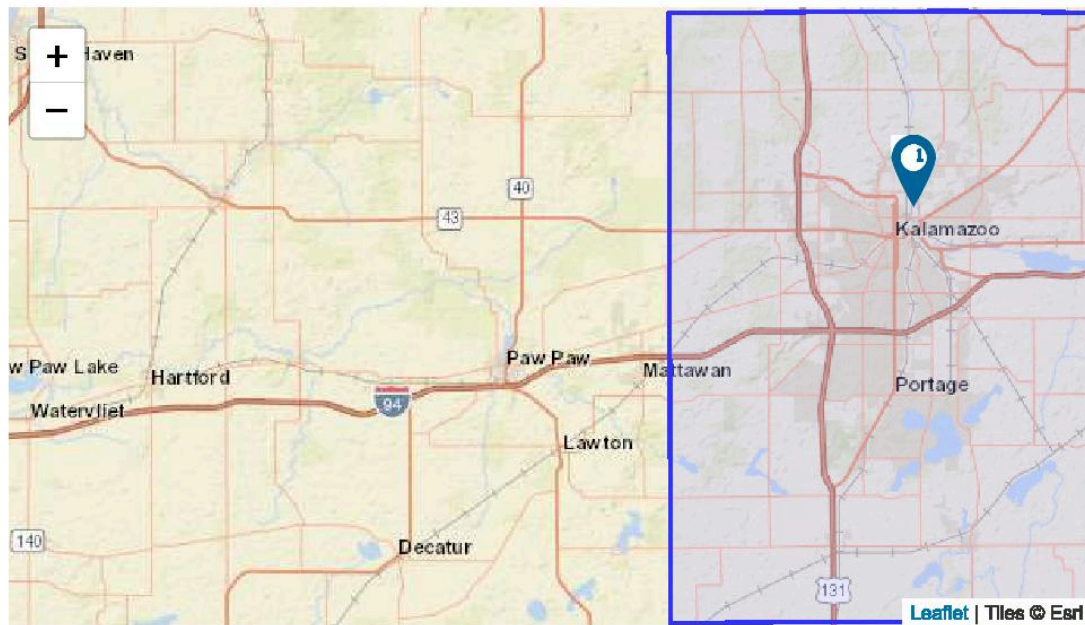
FEMA

## Benefit-Cost Calculator

V.6.0 (Build 20211228.2010 | Release Notes)

## Benefit-Cost Analysis

Project Name: Treatment Plant Generator



| Map<br>Marker<br>▲      | Mitigation Title                                     | Property<br>Type | Hazard                             | Benefits (B)         | Costs (C)           | BCR<br>(B/C) |
|-------------------------|------------------------------------------------------|------------------|------------------------------------|----------------------|---------------------|--------------|
| 1                       | Other @ 1415 Harrison St, Kalamazoo, Michigan, 49007 |                  | DFA -<br>Infrastructure<br>Failure | \$ 18,075,354        | \$ 3,055,507        | 5.92         |
| <b>TOTAL (SELECTED)</b> |                                                      |                  |                                    | <b>\$ 18,075,354</b> | <b>\$ 3,055,507</b> | <b>5.92</b>  |
| <b>TOTAL</b>            |                                                      |                  |                                    | <b>\$ 18,075,354</b> | <b>\$ 3,055,507</b> | <b>5.92</b>  |



## Property Configuration

|                         |                                                      |
|-------------------------|------------------------------------------------------|
| Property Title:         | Other @ 1415 Harrison St, Kalamazoo, Michigan, 49007 |
| Property Location:      | 49007, Kalamazoo, Michigan                           |
| Property Coordinates:   | 42.308568, -85.574041                                |
| Hazard Type:            | Infrastructure Failure                               |
| Mitigation Action Type: | Other                                                |
| Property Type:          | Utilities                                            |
| Analysis Method Type:   | Historical Damages                                   |

## Cost Estimation

Other @ 1415 Harrison St, Kalamazoo, Michigan, 49007

|                              |                    |
|------------------------------|--------------------|
| Project Useful Life (years): | 19                 |
| Project Cost:                | \$3,024,500        |
| Number of Maintenance Years: | 19 Use Default:Yes |
| Annual Maintenance Cost:     | \$3,000            |

## Damage Analysis Parameters - Damage Frequency Assessment

Other @ 1415 Harrison St, Kalamazoo, Michigan, 49007

|                             |                    |
|-----------------------------|--------------------|
| Year of Analysis Conducted: | 2022               |
| Year Property was Built:    | 0                  |
| Analysis Duration:          | 10 Use Default:Yes |

## Utilities Properties

Other @ 1415 Harrison St, Kalamazoo, Michigan, 49007

|                                           |                      |
|-------------------------------------------|----------------------|
| Type of Service:                          | Wastewater           |
| Number of Customers Served:               | 192,836              |
| Value of Unit of Service (\$/person/day): | \$58 Use Default:Yes |
| Total Value of Service Per Day (\$/day):  | \$11,184,488         |

## Historical Damages Before Mitigation

Other @ 1415 Harrison St, Kalamazoo, Michigan, 49007

| Damage Year | Recurrence Interval (years) | WASTEWATER    | OPTIONAL DAMAGES |                 |                 | VOLUNTEER COSTS      |                | TOTAL        |                  |                       |
|-------------|-----------------------------|---------------|------------------|-----------------|-----------------|----------------------|----------------|--------------|------------------|-----------------------|
|             |                             | Impact (days) | Category 1 (\$)  | Category 2 (\$) | Category 3 (\$) | Number of Volunteers | Number of Days | Damages (\$) | Current Dollars? | Inflated Damages (\$) |
| 2021        | 0                           | 1.72          | 0                | 0               | 0               | 0                    | 0              | 19,237,319   | No               | 19,237,319            |
| 2020        | 0                           | 0             | 0                | 0               | 0               | 0                    | 0              | 0            | No               | 0                     |
| 2019        | 0                           | 0             | 0                | 0               | 0               | 0                    | 0              | 0            | No               | 0                     |



**Annualized Damages Before Mitigation**

Other @ 1415 Harrison St, Kalamazoo, Michigan, 49007

| Annualized Recurrence Interval (years) | Damages and Losses (\$)     | Annualized Damages and Losses (\$)     |
|----------------------------------------|-----------------------------|----------------------------------------|
| 11                                     | 19,237,319                  | 1,748,845                              |
|                                        | Sum Damages and Losses (\$) | Sum Annualized Damages and Losses (\$) |
|                                        | 19,237,319                  | 1,748,845                              |

**Expected Damages After Mitigation**

Other @ 1415 Harrison St, Kalamazoo, Michigan, 49007

|                             | WASTEWATER    | OPTIONAL DAMAGES |                 |                 | VOLUNTEER COSTS      |                | TOTAL        |
|-----------------------------|---------------|------------------|-----------------|-----------------|----------------------|----------------|--------------|
| Recurrence Interval (years) | Impact (days) | Category 1 (\$)  | Category 2 (\$) | Category 3 (\$) | Number of Volunteers | Number of Days | Damages (\$) |
| 0                           | 0             | 0                | 0               | 0               | 0                    | 0              | 0            |

**Annualized Damages After Mitigation**

Other @ 1415 Harrison St, Kalamazoo, Michigan, 49007

| Annualized Recurrence Interval (years) | Damages and Losses (\$)     | Annualized Damages and Losses (\$)     |
|----------------------------------------|-----------------------------|----------------------------------------|
|                                        | Sum Damages and Losses (\$) | Sum Annualized Damages and Losses (\$) |
|                                        | 0                           | 0                                      |

**Benefits-Costs Summary**

Other @ 1415 Harrison St, Kalamazoo, Michigan, 49007

|                                                |              |
|------------------------------------------------|--------------|
| <b>Total Standard Mitigation Benefits:</b>     | \$18,075,354 |
| <b>Total Social Benefits:</b>                  | \$0          |
| <b>Total Mitigation Project Benefits:</b>      | \$18,075,354 |
| <b>Total Mitigation Project Cost:</b>          | \$3,055,507  |
| <b>Benefit Cost Ratio - Standard:</b>          | 5.92         |
| <b>Benefit Cost Ratio - Standard + Social:</b> | 5.92         |

***(This page intentionally left blank.)***

## Appendix A: Local Jurisdiction Primary Contacts

| <b>JURISDICTION</b>        | <b>PRIMARY CONTACT</b> | <b>ORGANIZATION/POSITION</b> | <b>DATE OF RESOLUTION TO PARTICIPATE</b> | <b>DATE OF ADOPTION OF PLAN</b> |
|----------------------------|------------------------|------------------------------|------------------------------------------|---------------------------------|
| Village Schoolcraft        | Tammy Youngs           | Village Office Manager       | 1/06/2020                                |                                 |
| Village of Richland        | Kim Lewis              | Village Board                | 1/13/2020                                |                                 |
| City of Parchment          | Shannon Stutz          | City Manager                 | 1/20/2020                                |                                 |
| Ross Township              | Christina Hutchings    | Twp. Supervisor              | 1/21/2020                                |                                 |
| Augusta (Village)          | Julie Glenn            | Village Clerk                | 2/03/2020                                |                                 |
| Village of Vicksburg       | Jim Mallery            | Village Manager              | 2/17/2020                                |                                 |
| Richland Township          | Lysanne Harma          | Twp. Supervisor              | 2/18/2020                                |                                 |
| Kalamazoo Charter Township | Don Martin             | Twp. Supervisor              | 2/24/2020                                |                                 |
| Charleston Township        | Jerry Vander Roest     | Twp. Supervisor              | 2/25/2020                                |                                 |
| Oshtemo Charter Twp.       | Libby Heiny-Cogswell   | Twp. Supervisor              | 2/25/2020                                |                                 |
| City of Galesburg          | Lori West              | Mayor                        | 3/02/2020                                |                                 |
| Cooper Charter Twp.        | Jeff Sorenson          | Twp. Supervisor              | 3/16/2020                                |                                 |
| City of Portage            | Mike Carroll           | Assistant City Mgr.          | *                                        |                                 |
| Alamo Township             | Cindy Snyder           | Twp. Clerk                   | *                                        |                                 |
| Brady Township             | Michelle Crawford      | Twp. Clerk                   | 11/09/2020                               |                                 |
| Climax Township            | Marcia Lewis           | Twp. Clerk                   | 8/11/2020                                |                                 |
| Comstock Charter Township  | Randy Thompson         | Twp. Supervisor              | 8/17/2020                                |                                 |
| City of Kalamazoo          | Jeff Chamberlain       | Deputy City Mgr.             | 11/2/2020                                |                                 |
| Pavilion Township          | Karen Siegwart         | Twp. Clerk                   | 11/20/2020                               |                                 |
| Schoolcraft Township       | Virginia Mongreig      | Twp. Clerk                   | 12/08/2020                               |                                 |
| Texas Charter Township     | Linda Kerr             | Twp. Clerk                   | 10/12/2020                               |                                 |

# Appendix B: Sample Meeting Minutes- Kalamazoo County Disaster Preparedness Committee

## Disaster Committee Meeting Minutes

March 3, 2021

The regular monthly meeting was called to order at 1401 hours by Vice-Chair Mike Corfman.

|                                            |       |                                   |                                         |
|--------------------------------------------|-------|-----------------------------------|-----------------------------------------|
| Andrew Alspach, OEM                        | ..... | Andrew Bachmann, WMU PD           | Celia Bantelos, HCS                     |
| Miranda Bigelow                            |       | Eric Bjorkman, Airport            | Corinne Bradley, Senior Services        |
| Bill Cable, Pfizer                         |       | Adam Castle, 211 / Gryphon Place  | Michael Corfman, OEM                    |
| Cindy Faulk, OEM                           |       | John Gisler, KC Commissioner      | Tom Hemmingway, Stryker                 |
| Jeff Heppler, Augusta PD / KC Commissioner |       | Peter Hoyt, Red Cross             | Matt Huber, KDPS                        |
| Eric Lyons, Pfizer                         |       | Jennifer Martin, Bronson Hospital | Dan Miller, KC Reserves                 |
| Sally Ossewaarde, Ascension Borgess        |       | Jeff Parsons, OEM                 | Charles Pfister, RACES                  |
| Torie Rose, KCCDA                          |       | Michael Seals, Public             | Dianne Shaffer, Integrated Services Kal |
| Dina Sutton, County Administration         |       | Donovan Thomas, EGLE              | Dick VanderWeele, Salvation Army        |
| Paul Vosburg, Kal/BC Regional Airport      |       | Jason Wiersma, Drain Commission   |                                         |

### Approval of Meeting Minutes:

The Minutes of the February 2021 were approved with a motion by Jeff Heppler, seconded by Mike Seals. The motion was approval by the committee members via ZOOM.

### Educational Time:

No Report

### Reports:

#### ☛ Medical Services ~ 5th District Medical Response Coalition ~ Hospitals ~ Long Term Care Facilities

- Ascension Borgess Hospital, Sally Ossewaarde
  - Waiting on more vaccines in order to open up more under Governor's current mandate
- Bronson Hospital, Jennifer Martin
  - Keeping up on overall big picture on the COVID and current Governor mandates

#### ☛ Human Services ~ Red Cross ~ Salvation Army ~ VOAD ~ 2-1-1/Help-Line

- Kalamazoo County Response Consortium, Adam Castle
  - 2-1-1 continues assisting folks needing help in registering for vaccinations ... Kalamazoo County Response Consortium's monthly meeting March 25 with main topic of Flood Preparation ... Playing a part in facilitating educational review of regional warming shelter activation, lessons learned, etc.
- Red Cross, Peter Hoyt
  - Very busy in SW Michigan with 80 cases assisting 88 clients, with 27 cases within Kalamazoo helping 63 clients ... Staff in Detroit area due to large apartment fires from Ann Arbor to Detroit (2-weeks at a time over the last two months)
- Salvation Army, Dick VanderWeele
  - Assisted Emergency Management, Bronson Hospital and Family Health at two COVID vaccination clinics

Meeting Minutes

March 3, 2021

Page 2

- Senior Services, Corinne Bradley

*To promote, through cooperative dialogue among entities, unified planning and coordination of disaster mitigation, preparedness, response, and recovery to natural or man-made disasters within Kalamazoo County.*

[www.kalamazooemergencymanagement.org](http://www.kalamazooemergencymanagement.org)

- Senior Services was approached by an independent organization SAATHI that is made up of many cultural and religious backgrounds that support the underserved populations. Senior Services' Generations Catering was able to assist with providing meals to the unhoused encampments. The total meals thus far has been 320 meals to the unhoused population.

#### ☛ **Communications ~ Public Information**

- Kalamazoo County Dispatch Authority, Torie Rose
  - Decreased internal restrictions for staff
- Public Information, Andy Alspach
  - Spoke on recent power outages in Texas and issues they encountered, how we need to be mindful locally with our mitigation planning ... Spoke on happenings in Israel regarding the COVID and how they are moving forward with movement within the country ... Rumor control, contact Andy at [amalsp@kalcounty.com](mailto:amalsp@kalcounty.com)
- RACES, Charles Pfister
  - Hospital Net tonight ... Testing D-Star Digital Voice System with Hospital Net Call Up followed by analog net for Kal County HAMS ... Deployed during recent visit by President Biden

#### ☛ **Law Enforcement ~ Military ~ Security**

- Augusta Police, Jeff Heppler
  - Preparing for pending storm and tornado season ... Filling out forms for the State regarding road & bridge repair in Augusta
- Kalamazoo Department of Public Safety, Matt Huber
  - Unable to decipher from recording
- Western Michigan University, Andrew Bachmann
  - Continue working on keeping campus safe with onsite learning ... Spring break the end of March with virtual classes following through the end of semester ... Unable to decipher from recording

#### ☛ **5th District Homeland Security**

- No Report

#### ☛ **Fire Services ~ Hazardous Materials ~ DNR/EGLE**

- EGLE, Donovan Thomas
  - Unable to decipher due to recording distortion
- Kalamazoo-Battle Creek International Airport Fire Department, Paul Vosburg
  - Thanked everyone who assisted during the visit of President Biden ... May 21 is their Tri-Annual Disaster Drill

#### ☛ **Public Health**

- Health & Human Services, Celia Banuelos
  - Gave update on COVID clinics ... Currently prepared to vaccinate up to 3500 per shift ... Work group established to review groups able to be vaccinated per governor mandate ... Assessing possible out-clinic sites throughout the County ... Work group with homeless regarding vaccination strategy ... Receiving requests from various dignitaries to come and tour clinic sites ... For updates within Kalamazoo County visit their website: <https://www.kalcounty.com/hcs>
- Integrated Services of Kalamazoo, Dianne Shaffer
  - More staff are returning to offices ... Alternate day shelter for homeless at the river will continue through March ... Gave an update on partnership with KDPS and KCSO agencies and overdose victims

Meeting Minutes  
March 3, 2021  
Page 3

#### ☛ **Emergency Management ~ LEPC ~ LPT**

*To promote, through cooperative dialogue among entities, unified planning and coordination of disaster mitigation, preparedness, response, and recovery to natural or man-made disasters within Kalamazoo County.*  
[www.kalamazooemergencymanagement.org](http://www.kalamazooemergencymanagement.org)

- Emergency Management, Mike Corfman
  - Been very busy with a little bit of everything involving the COVID, i.e. clinics, planning, logistics, etc., as well as the current County's State of Emergency and various (virtual) meetings associated with that. The EOC has been activated since March 15, 2020 for the COVID ... Severe Weather Awareness week is March 21 thru 27 with Statewide Tornado Drill at 1pm on March 24
- Hazard Mitigation Plan, Andy Alspach
  - Surveys sent out to participating jurisdictions (23 out of 24) with three returned to date
- ☛ **Public Services ~ Utilities**
  - Kalamazoo-Battle Creek International Airport, Eric Bjorkman
    - Echoed thank you to everyone who assisted during the visit of President Biden ... Full scale exercise May 21 ... Regarding the PFAS investigation, the Airport officially listed as an impact site, no threat to public health
  - Kalamazoo County Commissioners
    - Commissioner Jeff Hepler
      - Assigned as representative by the County Board to the Disaster Committee with Commissioner John Gisler as his backup ... Thanked Mike Seals for the many years he partnered with the DC as a County Commissioner
    - Commissioner John Gisler
      - Appreciative remarks to the Office of Emergency Management and looks forward to being a part of this Committee
- ☛ **Education ~ KRESA ~ Colleges ~ Universities**
  - No Report
- ☛ **Private Sector:**
  - Pfizer, Bill Cable & Eric Lyons
    - Other than a couple of visitors a few days ago (President & Governor) ... Shout out to Portage Public Safety, 5th District EMS Coalition, and Pride Ambulance for staffing forward joint operational command during presidential visit
  - Stryker, Tom Hemingway
    - Offered site for drive-through clinics, unable to decipher full share due to recording distortion
- ☛ **Good of the Order:**
  - Mike Seals
    - If you know of any veteran, 55 years of age and older, needing a vaccine have them contact the VA
- ☛ **Meeting Adjourned:**
  - 1455 hours
- ☛ **Next Meeting:**
  - Wednesday, **April 7, 2021** @ 1600 hours (2:00 pm)
    - ***Until otherwise announced, meetings will be held virtually via the ZOOM platform***

Respectfully submitted,  
Cindy Faulk

*-- Preparing for Tomorrow Today--*

*To promote, through cooperative dialogue among entities, unified planning and coordination of disaster mitigation, preparedness, response, and recovery to natural or man-made disasters within Kalamazoo County.*  
[www.kalamazooemergencymanagement.org](http://www.kalamazooemergencymanagement.org)



## CITY OF PORTAGE

## RESOLUTION CONCERNING KALAMAZOO COUNTY HAZARD MITIGATION PLAN

At a regular meeting of the Council of the City of Portage, Kalamazoo County, Michigan, held at the City Hall in said City on the 22nd day of August, 2006, at 7:30 p.m. local time.

PRESENT: DeShazor, O'Brien, Reid, Strazdas, Urban, Vliek

ABSENT: Sackley

Resolution offered by: Urban

Seconded by: O'Brien

**WHEREAS**, the City of Portage, is a participant in the Kalamazoo County Hazard Mitigation Plan (hereafter "KCHMP").

**WHEREAS**, the KCHMP represents ongoing and future activities within the county as consistent with the City of Portage's interest in the health, safety and welfare of its citizens.

**WHEREAS**, adoption of this plan enables Portage to be eligible for Federal Funding for Hazard Mitigation projects.

**WHEREAS**, the countywide multi-jurisdictional all-hazards plan was created to document the process by which 24 individual units of local government protect the health, safety and economic interests of their residents and businesses by reducing the impacts of natural and technological hazards through hazard mitigation planning, awareness, and implementation.

**WHEREAS**, the Plan serves as a description of the ongoing hazard mitigation activities and actions within Kalamazoo County.

**WHEREAS**, implementation of the Plan will reduce loss of life, destruction of property and economic losses due to natural and technological hazards.

**WHEREAS**, the Plan provides a path toward continuous improvement and the proactive reduction of vulnerability to hazards that result in repetitive and oftentimes severe social, economic and physical damage.

**NOW, THEREFORE, BE IT RESOLVED:**

1. The following mitigation projects are selected by the City of Portage as appropriate to its needs and priorities:
  - A. Develop a model<sup>1</sup>, using 73 surface-water, 111 ground water and 16 lakes, to simulate the Ground-Water-Flow System in the Portage Area in cooperation with the City of Kalamazoo, City of Portage<sup>2</sup>, Kalamazoo County Human Services Department, and Michigan Department of Environmental Quality - to address concerns about the long-term availability of ground water for people to use and for replenishment of lakes and streams. (KCHMP Item 5(a)1 reference page X-102). This relates to Floodplain management - planning acceptable uses for areas prone to flooding (KCHMP Item 5(a)3 reference page X-103) and to Ensure Wellhead Protection for Groundwater Sources (KCHMP Item 7(b)2 reference page X-142).
  - B. House and deploy a Decontamination Trailer<sup>3</sup> to provide rapid response for biological and/or chemical emergencies to Portage-area locations (KCHMP Item 6(a)5: Facilitate community training and exercise programs - reference page X-115; KCHMP Category 6: Hazardous Material Incidents - reference page X-112; KCHMP Category 8(a) Public Health Emergencies - reference page X-150; KCHMP Item 6(d) - Pipeline Accidents - reference page X-130;

---

<sup>1</sup><http://pubs.usgs.gov/sir/2004/5054/SIR2004-5054.pdf>

<sup>2</sup>Robert O. Kimmer, Contract Administrator - City of Portage; Peter Maas, Pfizer, Inc; Robert Snell and Barbara Marcak, Prein and Newhof; Christopher Everts, Mactec Eng. & Consulting; various local residents, et al)

<sup>3</sup>Trailer "Decon 2" - housed at Portage Fire Station #3

and KCHMP Item 8(a): Public Health Emergencies (contamination - reference page X-150).

2. The City of Portage supports the intent and activities contained in the KCHMP, and the aforementioned projects in compliance with the Disaster Mitigation Act of 2000 (PL 106-390).
3. It is the intent of the City of Portage to perform the above projects only if and when FEMA money is made available to fund such projects, except as provided in other agreements.

All resolutions and parts of resolutions insofar as they conflict with the provisions of this resolution are hereby rescinded.

YEAS: DeShazor, O'Brien, Reid, Strazdas, Urban, Vliek

NAYS: None

ABSENT: Sackley

**RESOLUTION DECLARED ADOPTED.**

  
James R. Hudson, City Clerk

STATE OF MICHIGAN       )  
                                      )SS  
COUNTY OF KALAMAZOO )

I, the undersigned, the duly qualified and acting City Clerk of the City of Portage, Kalamazoo County, Michigan, do hereby certify that the foregoing is a true and complete copy of a resolution adopted at a regular meeting of the City Council of said City, held on the 22nd day of August, 2006, the original of which resolution is on file in my office.

IN WITNESS WHEREOF, I have hereto affixed my official signature this 23rd day of August, 2006.

  
James R. Hudson, City Clerk

Approved as to Form:

Date: 8/7/06

By: JCS

Z:\Jody\PORTAGE\RES\Resolution Regarding Kalamazoo County Hazard Mitigation Plan.wpd





LOCAL JURISDICTION RESOLUTION OF ADOPTION  
OF THE  
2023 KALAMAZOO COUNTY HAZARD MITIGATION PLAN

RESOLUTION NO.

A RESOLUTION OF

(ADOPTING THE 2022 KALAMAZOO COUNTY HAZARD MITIGATION PLAN)

(Jurisdiction Name)

WHEREAS

recognizes that all hazards pose a potential threat to people and property within our community; and...

WHEREAS Kalamazoo County Emergency Management has prepared a multi-hazard mitigation plan, hereby known as the 2023 Kalamazoo County Hazard Mitigation Plan, in accordance with federal laws, including the [Robert T. Stafford Disaster Relief and Emergency Assistance Act](#), as amended; the [National Flood Insurance Act of 1968](#), as amended; and the [National Dam Safety Program Act](#), as amended; and...

WHEREAS the 2023 Kalamazoo County Hazard Mitigation Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in Kalamazoo County, Michigan from the impacts of future hazards and disasters; and...

WHEREAS adoption by

demonstrates its commitment to hazard mitigation and achieving the goals outlined in the 2022 Kalamazoo County Hazard Mitigation Plan,

(Governing Body)

NOW THEREFORE, BE IT RESOLVED BY THE

THAT:

Section 1. hereby adopts the 2023 Kalamazoo County Hazard Mitigation Plan. While content related to Kalamazoo County may require revisions to meet the plan approval requirements, changes occurring after adoption will not require sub-jurisdictions to re-adopt any further iterations of the plan. Subsequent plan updates following the approval period for this plan will require separate adoption resolutions.

ADOPTED by a vote of \_\_\_\_ in favor and \_\_\_\_ against, and \_\_\_\_ abstaining, this \_\_\_\_ day of \_\_\_\_\_, \_\_\_\_.

By: \_\_\_\_\_ (print name) \_\_\_\_\_ (signature)

ATTEST: By: \_\_\_\_\_ (print name) \_\_\_\_\_ (signature)

**TO:** Honorable Mayor and City Council

**FROM:** Pat McGinnis, City Manager

**SUBJECT:** Receive rezoning application No. 23/24-2 to rezone 6008 and 6018 Chelsea Lane from R-1A One-Family Residential to B-3 General Business District and P-1 Vehicular Parking to facilitate a future commercial development, and set a public hearing for February 6, 2024.

**SUPPORTING PERSONNEL:** Peter Dame, Chief Development Officer

**ACTION RECOMMENDED:** Receive rezoning application No. 23/24-2 per the Planning Commission's alternative recommendation to rezone 6008 and 6018 Chelsea Lane from R-1A to B-3 and P-1, excluding the southern 65 feet area of 6018 Chelsea Lane which would be rezoned to P-1 to facilitate a future commercial development, and set a public hearing for February 6, 2024.

The applicant (MC Weiner Company) seeks rezoning application No. 23/24-2 to rezone 6008 and 6018 Chelsea Lane from R-1A One-Family Residential to B-3 General Business District and P-1 Vehicular Parking to facilitate future commercial development. These two properties (the 'site') are currently developed with single-family homes (owned by the applicant) which would be demolished if the rezoning application and subsequent permits for a commercial development are approved.

Per the applicant's proposed rezone map, the existing B-3 district from the west (120 East Milham Avenue) would extend east 65.5 feet (14,461 square feet area) and the remaining portion of the site (21,475 square feet) would be P-1 Vehicular Parking district. Attached to this report are documents received from the applicant including but not limited to overall project narratives, several zoning maps, and traffic memo.

The applicant held a neighborhood meeting on August 8, 2023 to gain neighborhood input about the rezone and share conceptual plans of a commercial development extending from already commercially zoned property owned by the applicant on South Westnedge at the corner of Milham and South Westnedge. All residents within the Glenbrook Village neighborhood were invited. The applicant received mixed input from 20 people in attendance, consisting of the following summarized perceived concerns: changes to the nature of the area, commercial traffic using neighborhood streets, commercial noise and odors, commercial trash, and commercial lighting. The applicant indicated that these concerns would be addressed in a final site plan and by seeking the two proposed zoning districts of B-3 and P-1 instead of requesting a rezone of the properties to all commercial. The applicant believes that a P-1 buffer surrounding a deeper B-3 zoning directly behind the existing South Westnedge property would be the best fit for future development and lessen intense commercial activities towards adjacent residences. Staff received a letter and neighborhood petition in September 2023 signed by residents in the area opposing the rezone. The letter and petition are attached to this report.

The site (two subject lots: 6008 and 6018 Chelsea Lane) is located at the intersection of East Milham Avenue and Chelsea Lane. The property at 6008 Chelsea Lane (12,594 square feet in size) is located at the street corner and has frontage along both streets. The property at 6018 Chelsea Lane (23,331 square feet in size) is directly south of 6008 Chelsea Lane and only fronts Chelsea Lane. Both properties are owned by the applicant (since 2015, 2017) and have been used as rental properties while assembling a larger area for a future redevelopment investment. The house at 6008 Chelsea Lane is currently occupied, while the house at 6018 Chelsea Lane is currently vacant.

According to the City Assessor's records, the property at 6008 Chelsea Lane consists of a single-story, single-family detached house (1,854 square feet) and a 2-car detached garage (546 square feet). The house was built in 1959 and the garage was built in 1960. The property at 6018 Chelsea Lane consists of a single-story, single-family detached house (1,400 square feet) with an attached 2-car garage (528 square feet) and both were built in 1955.

Both lots are part of the Glenbrook Village 1947 subdivision plat (see the attached plat). Most of the residences on this plat were built in the 1950s, consisting of mostly single-story homes with garages and a mix of brick facades. Most homes have retained their general historical scale and exterior features of that era. The overall neighborhood has remained intact of its original residential use, despite the neighborhood's close proximity to commercial growth along South Westnedge Avenue, increased traffic along East Milham Avenue, and nearby commercial/ industrial users to the east.

### **Existing Conditions**

|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Existing Land Use/<br>Zoning | <ul style="list-style-type: none"><li>• The subject site consists of two single-family homes and zoned R-1A One-Family Residential.</li><li>• <u>North (across East Milham Ave.):</u> Walgreens, 5933 South Westnedge Ave., zoned 'Commercial Planned Unit Development'; Consumer's Energy, 205 East Milham Ave. zoned R-1A One-Family Residential; Single family house, 207 East Milham Ave. zoned R-1A One-Family Residential.</li><li>• <u>South:</u> Single Family House; 6028 Chelsea Ave.; Zoned R-1A One-Family Residential.</li><li>• <u>East:</u> Single Family Homes; 218 East Milham Ave. and 607 Chelsea Ln.; Zoned R-1A One-Family Residential.</li><li>• <u>West:</u> Little Caesar's Pizza, Betty Bella Braids; 6005, 6011 South Westnedge Ave. and 120 East Milham Ave.; Zoned B-3 General Business District.</li></ul> |
| Public Streets               | 2022 East Milham Ave. (just east of the intersection with South Westnedge Ave.) recorded 13,142 total Annual Average Daily Trips counts. Recorded by Kalamazoo Area Transportation Study (KATS).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |



|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Public Utilities  | City sanitary sewer and water are available along East Milham Ave. and Chelsea Ln.                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Environment       | The site is developed with single family detached homes.                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Unique Conditions | No mapped wetlands or flood hazards exist on the site. No mapped or identified historical structures/ buildings exist. The city has received a letter of interest from a resident in the neighborhood asking the city to consider a historic district for the entire plat, and an informational neighborhood meeting was held on November 28 to review the aspects of setting up a new historic districts. This request has not been considered by the Historic Preservation Commission at this time.c |

### **Applicable Zoning Regulations**

The following sections of Chapter 42. Division 8. Subsection 651 Amendments to this Article. Procedures and regulations apply and are addressed further in this report:

#### **[Sec. 42-651. Amendments to this Article](#)**

Under this article, the rezoning request shall file a rezoning application, fee and to be scheduled for review during public hearings for the Planning Commission and City Council. The Planning Commission shall determine if the rezoning is appropriate based on the Comprehensive Plan, surrounding development patterns, and general land use considerations. Issues to be analyzed include consistency with the Future Land Use Map, suitability of the existing zoning classification, and the impact of the proposed zoning classification.

#### **Current Zoning: R-1A One Family Residential District**

The site has been zoned one-family residential for many decades and reflects the current residential development within the Glenbrook Village residential neighborhood. Despite commercial and industrial growth pressures from the east and west, the neighborhood's residential use and buildings have remained intact.

#### **Proposed Zoning Districts: B-3 General Business and P-1 Vehicular Parking**

##### **B-3 General Business:**

The intent of B-3 General Business District is to accommodate a wide array of businesses and auto-oriented shopping needs. This district is generally located along major thoroughfares, such as South Westledge Avenue, Shaver Road, and Portage Road and on certain intersecting streets such as Milham Avenue. The following uses are allowed in the B-3 district:

- 1. Any principal permitted use and Special Land Uses in the B-1 and B-2 business districts.*
- 2. Auto repair businesses within certain limitations*
- 3. Social, Recreational buildings/ properties.*
- 4. Hotels, Motels*

- 5. Dry cleaning retail establishments, but not including central dry-cleaning plants serving more than one retail establishment.*
- 6. Religious institutions.*
- 7. Automatic, Self-serve Car Washes*
- 8. A specialized agricultural use of land operating and in existence on the effective date (insert date) of this amendment, and land contiguous with and owned by a person operating such adjoining parcel on the effective date of this amendment, shall be considered conforming for all purposes under this article.*
- 9. Accessory buildings and uses customarily found in connection with the uses in this district.*
- 10. And more general office, restaurant, and retail uses.*

The applicant's conceptual commercial development with a drive-thru service is a principal permitted land use in B-3 district.

#### P-1 Vehicular Parking:

P-1 Vehicular Parking District is used solely to permit off-street parking associated with a principal use, to serve uses without adequate off-street parking facilities, and to serve as a zone of transition between residential and non-residential districts. Prohibited uses in P-1 district include commercial car repair, car sales, and buildings other than a parking lot attendant booth. Additionally, P-1 lists development criteria lessening parking lot impacts such as ensuring compliant landscaping/ screening/ lighting, limited commercial signage, and a 25' minimum setback from abutting residential districts. Existing P-1 districts are generally small in size and can be found along the South Westnedge Avenue corridor abutting residential neighborhoods. This district has enabled redevelopment of commercial sites near residential neighborhoods with little overall impact on adjacent residential neighborhoods.

#### Comprehensive Plan

The Future Land Use Map component of the [Comprehensive Plan](#) classifies the subject properties (6008 and 6018 Chelsea Lane) as 'Single-Family Detached-Medium Density Residential (SFD-MDR)' described as single-family detached homes connected to City water and sewer, up to 6 units/ acre in density, and corresponding to zoning districts R-1A and Planned Development (PD). The site's underlying R-1A zoning district is consistent with that classification. Further, the existing single-family residences are consistent with the zoning district and the Future Land Use Map.

Staff note that when reviewing rezone requests, the Comprehensive Plan acknowledges that deviations from the Future Land Use Map may be appropriate when justified by more detailed information, changes to conditions, or in cases where a deviation is not contrary to the overall intent and purpose of the Plan.

Staff note that the two commercial sites (6005 South Westnedge Ave. and 120 E. Milham Ave.) located within the applicant's concept commercial development are classified as 'Regional Business', which is consistent with those properties in the B-3 General Business zoning district.

The following strategies and guidelines of the Comprehensive Plan are relevant to the proposed rezone:

#### Implementation Strategies, Guidelines

- Continue to evaluate (re)development opportunities involving the South Westnedge Avenue Commercial Corridor, so this remains a magnet in the regional market.

- Enhance the appearance/functionality of the South Westnedge Commercial Corridor, including the Portage Commerce Square and Downtown Development District, by working with property owners to improve site and building design and attract new uses that respond to changing markets.
- Guideline C-2: Allow commercial/ office use:
  - f) adjacent to older or redeveloping residential areas where the commercial/office use does not create nuisances and is compatible with the surroundings.
- Guideline C-3: Local or neighborhood commercial uses should meet the following standards:
  - c) the intensity, size and hours of operation will not adversely affect existing residential areas;
- Guideline C-4: Locate and design commercial uses attracting large numbers of people or generating large volumes of traffic (200+ trips in peak hour or 1000+ daily) in accordance with the following:
  - c) the use should be sufficiently spaced or buffered from residential or institutional uses.

The applicant suggests support from the Comprehensive Plan which indicates using best practices in building and infrastructure design, Future Land Use Map boundaries not firm but aspirational in context, and continuing reinvestment along the South Westnedge Avenue commercial corridor. Further, the applicant indicates that new commercial growth along this corridor has already encroached at times into some residential neighborhoods with little impact, leading to further allowances for future commercial redevelopments.

#### Suitability of B-3, P-1 Districts/ Neighborhood Harmony

Continued commercial demand and growth along the South Westnedge Avenue corridor and its intersections have consumed nearly all available vacant lands. New commercial developments have been constructed on unused parking lot edges and resulted in demolition and rebuilt development to support future commercial growth. Examples include:

1. 3-tenant building at Gladys Street & South Westnedge Avenue intersection:
  - a. Pita Way-6403 South Westnedge Ave.; and
  - b. City Barbeque-6395 South Westnedge Ave.; and
  - c. Sleep Number-6405 South Westnedge Ave.
2. Well Now Urgent Care-6012 South Westnedge Ave.
3. Valvoline Oil Change-6425 South Westnedge Ave.

In some cases along the east side of the South Westnedge Avenue corridor, past commercial rebuilds have expanded slightly into adjacent residential neighborhoods. Examples include the Walgreens, AT&T, The Honey Baked Ham Company, and Panda Express developments. In the rear portion of those developments, the previous district was either rezoned to a more intense commercial district, expanded commercial boundaries to the east, and/or rezoned to P-1 Parking.

### Applicant's Proposal as Submitted

Rezone 6008 and 6018 Chelsea Lane from R-1A to B-3 and P-1 Districts as proposed by the applicant. The applicant's submittal consists of compelling reasons to support their rezone including support from the Comprehensive Plan and Future Land Use Map, use of the P-1 district instead of a business district, use of parking lot buffers, and past successful use of existing P-1 districts to the north along the east side of South Westnedge Avenue that facilitated commercial redevelopment with little impact to adjacent residences. As noted earlier, the P-1 district requires a parking lot setback and landscaping as buffering elements for abutting residential property.

### Rezoning 6008 Chelsea Lane

Staff support rezoning this property into B-3 and P-1 as proposed based on the following:

- It is consistent with the Comprehensive Plan goal of supporting new/ redevelopment investments and strengthening the South Westnedge Avenue commercial corridor.
- Current and future impacts from the existing commercial/ traffic conditions in the South Westnedge Ave commercial corridor area greatly influence and will likely increase its desirability for future commercial potential.
- The property is narrow and largely faces East Milham Avenue - a highly traveled road, and only has a small frontage along Chelsea Lane (residential street).
- Only a small area of a future parking lot would face adjacent residential areas.
- Negative impacts to adjacent residences will be lessened due to required trees, bushes (Sec 42-572) along Chelsea Lane and East Milham Avenue and lighting restrictions (Sec 42-594) for any future parking lot.

### Rezoning 6018 Chelsea Lane

Staff do not fully support rezoning this entire property into B-3 and P-1 as proposed based on the following:

- Overall, it results in commercial encroachment on an intact residential neighborhood and could lead to negative impacts on existing single-family residential homes.
- Possible negative impacts on 6028 Chelsea Lane (south) from the proposed B-3 southwest area. Staff note that a required 25' wide parking lot buffer (plus 6' tall fence and landscaping) to the south shall be provided from the southern lot line if rezoned to P-1.
- Possible negative impacts on 6017 Chelsea Lane (east across Chelsea Lane) and 6028 Chelsea Lane (south).
- The area of the proposed B-3 and P-1 appears beyond the minimum area needed to accommodate future commercial development. Staff note that the applicant owns abutting B-3 zoned property that could possibly accommodate future commercial development.

### Staff's Primary Alternative to the Application Request

Rezone 6008 and 6018 Chelsea Lane from R-1A to B-3 and P-1, excluding the southern 65 feet area of 6018 Chelsea Lane to provide the following:

- The excluded area would remain R-1A and result in the minimum frontage (65 feet) and area (7,800 square feet) for an R-1A lot and future single-family house.

- This would create an ample buffer (either open space or a future residence) for the existing residence to the south and east.
- This would result in a lot remaining for a future single-family residence.
- This would reduce future commercial encroachment into the residential neighborhood.
- The existing house at 6018 Chelsea Lane could be demolished for future commercial development.

As part of the Planning Commission review of the original application, staff also presented a second alternate

Rezone 6008 and 6018 Chelsea Lane from R-1A to B-3 and P-1, excluding the southern 65 feet area of 6018 Chelsea Lane which would be rezoned to P-1 to provide the following:

- Accommodate more future parking associated with future commercial development in the adjacent B-3 area.
- Lessen B-3 commercial encroachment into the residential neighborhood by only allowing P-1 parking in the southern part of 6018 Chelsea Lane.
- The existing house at 6018 Chelsea Lane could be demolished for future commercial development.

Impacts to City Services, Utilities, ROWs

If the rezone is approved, it is expected to have a negligible increase in demands for city services because only a small portion would consist of a new B-3 area with the majority of P-1 parking. Also, if the rezone is approved, city staff will ensure utility and traffic compliance of the future commercial development during the required Site Plan application review process. Staff notes that the applicant has submitted a Traffic Impact Study associated with the concept commercial development as additional background data even though it is not required for the subject rezone proposal.

Staff note that although there was a concept presented for a restaurant that prompted the request for this rezone, it is not part of the rezone review criteria, as any type of building/use that meets the rezoning requirements could be allowed. If the rezone is approved, a Site Plan Application and Building Permit will be required and address site- and building-related codes and development standards. The applicant is not bound to submit a site plan for the restaurant concept.

As stated in the analysis, staff do not fully support the rezone as submitted by the applicant due to inconsistencies with the Comprehensive Plan and resulting commercial encroachment into a residential neighborhood. However, staff find that alternatives would facilitate future commercial development, align with the goals of the Comprehensive Plan, and lessen further commercial encroachment as specified below:

Staff's Primary Alternative

Rezone 6008 and 6018 Chelsea Lane from R-1A to B-3 and P-1, excluding the southern 65 feet area of 6018 Chelsea Lane which would be remained as R-1A (see the staff's primary alternative rezone map attached).

Secondary Alternative

Rezone 6008 and 6018 Chelsea Lane from R-1A to B-3 and P-1, excluding the southern 65 feet area of 6018 Chelsea Lane which would be rezoned to P-1 (see the attached Staff's secondary alternative rezone map).

### **PLANNING COMMISSION PUBLIC HEARING**

At the December 7, 2023, meeting, the Planning Commission reviewed and discussed the Rezoning Application # 23/24-2 to rezone 6008 and 6018 Chelsea Lane from R-1A One-Family Residential to B-3 General Business District and P-1 Vehicular Parking to facilitate a future commercial development. The applicant, Joshua T. Weiner and his team, MC Weiner Company, LLC and the consultant, Rick Williamson, Cavalier Development, were present to discuss the rezoning and future use of the site. Mr. Weiner stated that his team support the secondary alternative rather than the primary recommendation of staff or the original rezoning proposal in the application. The MC Weiner development team also indicated they will hold a neighborhood meeting for the site plan if the rezoning is approved. Two members of the public provided in-person testimony and expressed opposition to the project due to perceived concerns about the impacts from future car lights, noise from future cars in drive-thru, the impacts on traffic, property value, encroachment on the neighborhood, and possible negative impacts on the overall neighborhood. A petition from the adjacent neighborhood with several additional letters opposing the rezoning was also received in writing. The Planning Commission determined no further discussion was needed and voted to close the public hearing.

After careful consideration, the Planning Commission voted 6-2 to recommend to City Council the approval of the rezoning application # 23/24-2, the secondary alternative to rezone 6008 and 6018 Chelsea Lane from R-1A to B-3 and P-1, excluding the southern 65 feet area of 6018 Chelsea Lane which would be rezoned to P-1 for future commercial development.

### **Recommendation**

It is therefore recommended that City Council receive rezoning application No. 23/24-2 to rezone 6008 and 6018 Chelsea Lane per the Planning Commission's recommended alternative to rezone 6008 and 6018 Chelsea Lane from R-1A to B-3 and P-1, excluding the southern 65 feet area of 6018 Chelsea Lane which would be rezoned to P-1 to facilitate a future commercial development, and set a public hearing for February 6, 2024.

**FUNDING:** Not Applicable

- Attachments:**
1. Rezoning Application
  2. Applicant's Narratives
  3. Applicant's Proposed Zoning Map
  4. Applicant's Proposed Zoning Site Overlay
  5. Applicant's Concept Commercial Development Traffic Analysis
  6. Public Petition Letter with Map
  7. Glenbrook Village 1947 Subdivision Plat
  8. Public Notification Map
  9. Vicinity Map
  10. Parcel Map
  11. Existing Zoning Map
  12. Comprehensive Plan Future Land Use Map



13. Staff's Site Pictures; 11.27.23
14. Staff's Primary Alternative Rezone Map
15. Staff's Secondary Alternative Rezone Map
16. 12.1.23; Kosanke; 216 Windsor
17. 12.4.23; Holguin; 403 Windsor Ln
18. 12.6.23; Smith; 323 Windsor Ln
19. 12.7.23; Goldenbeld; 207, 219 E. Milham Ave
20. 12.11.23; Strand; 317 Windsor Ln
21. 12.15.23; Snyder; 310 Windsor Ln
22. Draft Planning Commission Minutes 12.07.2023
23. Planning Commission Transmittal
24. First Reading
25. 2024 01 06 Citizen Comment on rezoning Chelsea Lane

## APPLICATION FOR ZONING AMENDMENT

Application number \_\_\_\_\_

Date \_\_\_\_\_

### APPLICATION INFORMATION:

Meetings of the Portage Planning Commission are held on the first and third Thursday of each month at 7:00 p.m. in the Council Chambers of Portage City Hall, 7900 South Westnedge Avenue, Portage, Michigan. All zoning amendment applications must be properly filled out and submitted to the Department of Community Development and the zoning amendment fee paid at least 15 working days prior to the meeting at which the public hearing is held. The applicant will be notified in writing of all such public hearing/meetings. *Please note: City Staff and/or Planning Commissioners may visit the subject property while the application is under review.*

For more detailed information about the zoning amendment process, please refer to Portage Land Development Regulations, Article 4, Division 8, Subdivision 2.

### TO THE PLANNING COMMISSION:

I (WE), the undersigned, do hereby respectfully make application and petition the Portage Planning Commission to amend the Zoning Ordinance and/or change the Zoning Map as hereinafter requested. In support of this application, the following is submitted:

### **ZONING MAP AMENDMENT**

#### 1. a. Platted Land:

The property is part of the recorded plat: The property sought to be rezoned is located at 6008 & 6018 Chelsea Lane between S. Westnedge Ave Street and Chelsea Lane Street on the South of Milham side of the street, and is known as Lot Number(s) 10, 11 & 12 of Glenbrook Village Plat (Subdivision). It has a frontage of 142 feet and a depth of 342 feet.

#### b. Unplatted Land:

The property is in acreage, and is not therefore a part of a recorded plat. The property sought to be rezoned is located and described as follows: (Indicate total acreage and parcel number). Currently two residential lots at 6008 & 6018 Chelsea Lane, totaling 0.825 acres to be rezoned to B-3 and P-1. ( 0.332 acres rezoned to B-3 and 0.493 acres rezoned to P-1)

2. a. Do you own the property to be rezoned? Yes ☒ No ☐

b. Name of the owner of the property to be rezoned: Westnedge Milham, L.L.C

Address C/O Meyer C Weiner Company, 700 Mall Drive, Ste A, Portage, MI 49024

3. My (our) interest in the property and purpose for submitting the proposed Zoning Amendment:  
To allow for construction of a restaurant on a property that is zoned B-3 with adjacent residential zoning to be changed to B-3 and P-1.

4. CURRENT ZONING: R-1A PROPOSED ZONING: B-3 and P-1

### ZONING TEXT AMENDMENT

1. The proposed language to be considered is (attach additional sheets as necessary):

N/A

2. The Zoning Code Chapter and Section wherein the proposed text would be modified/inserted.

N/A

3. My (our) interest in and purpose for submitting the proposed Zoning Ordinance Amendment.

N/A

We attach a statement hereto indicating why, in our opinion, the change requested is necessary for the preservation and enjoyment of substantial property rights, and why such amendment will advance the public health, safety and welfare. An assessment of the impact of the proposal on the community and property of other persons in the vicinity of the amendment or affected by the amendment is also attached.



(Signature of Applicant)

(Signature of Applicant)

C/O Meyer C Weiner Company, 700 Mall Drive, Ste A, Portage, MI 49024

(Address)

(Address)

269-323-2441

(Phone)

(Phone)

A copy of all actions taken regarding this application shall be attached and shall be considered a part of this application.

APPLICATION FOR ZONING AMENDMENT  
LOTS 10, 11 & 12 OF GLENBROOK VILLAGE  
PROJECT NARRATIVE

This application to rezone the above-named lots from R-1A to a combination of B-3 and P-1 is needed to allow for the redevelopment of an aging retail strip into a newer high-quality project. This hard corner of Milham Ave and S Westnedge Ave is the only corner of the intersection which has not been redeveloped. Once rezoned, the resulting combined lots between S Westnedge Ave and Chelsea Ln will be deep enough to support current development standards for typical small-scale retail and commercial users. The lots are not currently deep enough to provide both the well landscaped and pedestrian friendly buildings but also the required parking and circulation, the screened trash enclosures and buffers in transitions to other uses necessary for redevelopment.

Prior to the submittal of this application, we have made a concerted effort to determine how the proposed use could best fit within the fabric of the existing neighborhood. We first walked the area and knocked on every door and met with everyone who was home after 5:00 pm on a weekday, explaining the planned site development and use, the nature of the company and that the developer wanted to fit in the neighborhood as best they could. Notices of a neighborhood meeting were mailed to each residence a week before the door knocking and a neighborhood meeting was held the next day to gather input and criticism from the individuals living in the neighborhood. About 20 people attended the meeting at Logan's Road House to see a presentation of the development and discuss anything they wanted to bring up. The main issues were changing the nature of the area, creating traffic through the neighborhood, noise created by the business, trash, lighting and odors. We took that input and followed up with investigation and changes to the site plan to alleviate the issues brought to our attention. We shifted the access/egress as far from the intersection of Milham and Westnedge as possible to create safer circulation to the site. We planned a masonry wall along the eastern boundary of the site with a green screen to shield noise and light from the neighborhood above and beyond that required by code. We funded a traffic study not required by the city to be certain that the fears of the neighbors regarding traffic were unfounded (the study is a part of this application). The input from the neighbors is a reason that the zoning request includes the P-1 designation for the area closest to the residences in order to limit the intensity of the development that can occur closest to the houses. We have tried to work with our future neighbors in order to be good neighbors ourselves.

This rezoning is consistent with many elements of the Portage 2014 Comprehensive Plan, including the Future Land Use Map.

First, the zoning change is consistent with the intent of the Future Land Use Map as it is discussed in the Plan itself. An exhibit is attached which illustrates (1) the blue line delineating the change from commercial to another use as laid out in the FLUM, (2) the red line indicating how the actual change in uses has played out over time and (3) the yellow line which shows the current commercial depth of the lots adjacent that requesting rezoning would have affected other retail development along S Westnedge if had been required.

As the Plan discusses, the zoning projected by the Comprehensive Plan and FLUM were best guesses and subject to examination and change. The requested zoning change in this application is consistent in nature with many current developments along S Westnedge Ave in the immediate area. Nearly the entire length of the east side of the Avenue in this area has a commercial use facing Westnedge that abuts a residential use to the east. No one could have known exactly how that line of separation would have worked best commercially in 2014 and there are several examples of small deviations along the way. Generally, the FLUM indicates deeper commercial zoning along S Westnedge Ave.

As far as conformity to the terms of the 2014 Comprehensive Plan, with respect to the redevelopment made possible by this zoning change, the Plan suggests using best practices in building and infrastructure design and, naturally, to the extent those recommendation have been adopted as development requirements, including the treatment of stormwater, we will fully comply if not exceed such requirements. We are replacing a restaurant with a restaurant, retaining a use in a proven location and maintaining the scale and intensity of development while using the most modern design, materials and infrastructure, upgrading the appearance in a huge degree and properly screening the more intense business use from the less intense residential use adjacent.

The Plan also includes an emphasis on Community Identity, building a deeper community and greater connectivity. This change in zoning and the development allowed thereby, a Raising Cane's restaurant, will be a great enhancement to the community. In short, Raising Cane's is a great neighbor. Our staff is recruited from the immediate area, people with a vested interest in the neighborhood. We serve our immediate community with healthy, fresh food choices and serving them later into the night to provide choices for the third shift workers. Our employee benefits are generous and broad. In addition, we support the communities in which we are located in many, many ways, including:

- Crew Member Volunteer Events
- Supporting local schools and universities through direct support and individual event participation, sponsoring sports teams, bands and recreational activities and participation in school philanthropic efforts.
- Raising Cane's believes that no one should go hungry and as a restaurant company, we should be a leader in fighting hunger. Raising Cane's supports programs and organizations that provide meals and canned goods to the homeless and hungry.
- The company and its Crew support local pet welfare causes because of the important need and dedication to animals as a company through the namesake, Raising Cane. Plush puppies are sold for different holiday seasons and the proceeds go to a local non-kill shelter.
- Supporting health lifestyles through financial support for walking trails, recreation areas and programs, runs and walks, sports teams and physical fitness. They have participated in charity runs by providing sponsorship money and refreshments for participants.
- Working as an active member of the business community is important to the success of Raising Cane's and its continued support of the community as a whole. They partner with local organizations to support business development and entrepreneurship education organizations and is a member of the Chamber of Commerce in every community in which they are located.

With regard to transportation, the new development will address several items brought forward in the Plan. New ADA-compliant sidewalks, pathways and entrances will improve accessibility on the site. Five foot wide sidewalks will reach down both Milham and Westnedge, increasing pedestrian safety and

circulation and allowing for more non-motorized vehicle use in an area dominated by automobiles. The number of driveways for the overall development will be reduced through sharing and the street access on Milham is shifting farther from the major intersection. The overall development contemplates shared circulation.

In order to comply with the Plan's observations of Land Use principles, the development will provide an appropriate buffer and transition between residential uses and commercial uses and we invited suggestions from our potential neighbors regarding such in a neighborhood meeting. The new development continues and improves pedestrian circulation and may connect directly to the adjacent neighborhood with a pedestrian gate. The business will now be well presented, maintained and serviced and uphold the conditions expected by our neighbors.

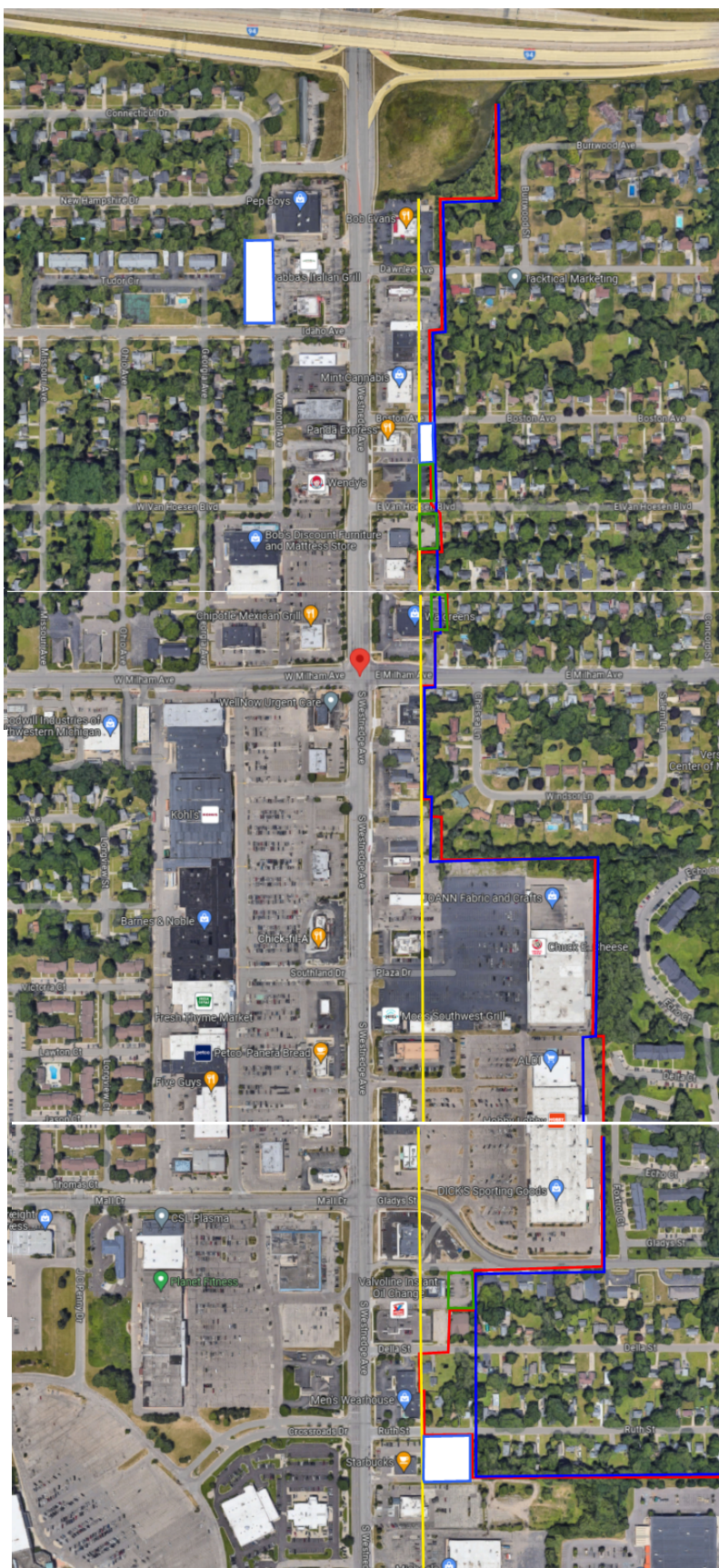
Addressing the discussion of Zoning in the Plan, it is clearly stated that FLUM "is intended to serve as a guide for land use decisions over a period of time (5+ years)" and was written in 2014. It also notes that "not all properties should be immediately rezoned to correspond to the Plan. When analyzed by the questions included in Guideline Z-1 of the Plan, the answer to each is in the affirmative.

The property has previously been developed for retail and residential uses which are adequately serviced by public utilities, streets, and sidewalks. The proposed development is not expected to materially impact these existing public infrastructure systems. Therefore, we do not expect the need to extend or increase the capacity of any of these systems. We will work with the authorities having jurisdiction over the existing roadway and utility networks during the design and permitting process and make any necessary improvements, if required, to ensure the surrounding community is not materially impacted by the proposed development.

We respectfully request that this application for zoning change be approved.



# Exhibit





# MEYER C. WEINER

COMPANY  
DEVELOPERS AND BUILDERS SINCE 1948

700 MALL DRIVE | PORTAGE, MI 49024  
p: 269.323.2441 | f: 269.323.3262 | mcweiner.com

November 2, 2023

RE: Support for the Raising Cane's partial B-3 and P-1 zoning request

In July of 2008, James Weiss the owner of the southeast corner of Westnedge and Milham, called the Meyer C. Weiner Company to determine our interest in the purchase of this development. He thought we were the perfect buyer given our development and redevelopment history in the area. He knew the property needed to be repurposed to properly function in the community for the future and he was nearing retirement.

We closed shortly thereafter on parcel addresses at 6005 S. Westnedge, 6011 S. Westnedge, 120 E. Milham and 130 E. Milham all zoned B-3. We soon learned that we needed to expand the size and depth to have any chance of a redevelopment. Some of the adjacent development to the south on Westnedge was in need of a makeover and there was precedent for parking in adjacent residential areas with Walgreens, Starbucks, Panda Express, A&W Acquisitions (Bed, Bath & Beyond and Babies R Us) and Portage Restaurant Row (Carrabba's and Red Robin). We have since purchased other property to the south on Westnedge as part of the Westnedge Milham, LLC entity with plans to expand this mixed-use development.

Our first tenant prospect is Raising Cane's, a national fast casual restaurant with an incredible business culture known for their civic responsibility in the communities they call home. Their site plan attached shows how they need additional parking to the east, to make the site properly function at this corner. An additional 0.332 acres of land rezoned to B-3 General Business and 0.493 acres of land rezoned to P-1 Vehicular Parking would allow the site to function with the proper access, parking, and visibility for success. The site plan will address the proper screening and lighting necessary to complement the surrounding neighborhood. Cane's and the Meyer C. Weiner Company want to remain good neighbors. Cane's is choosing Portage as their second location in the State at this high-profile site.

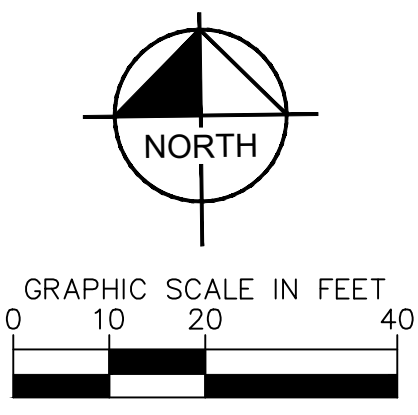
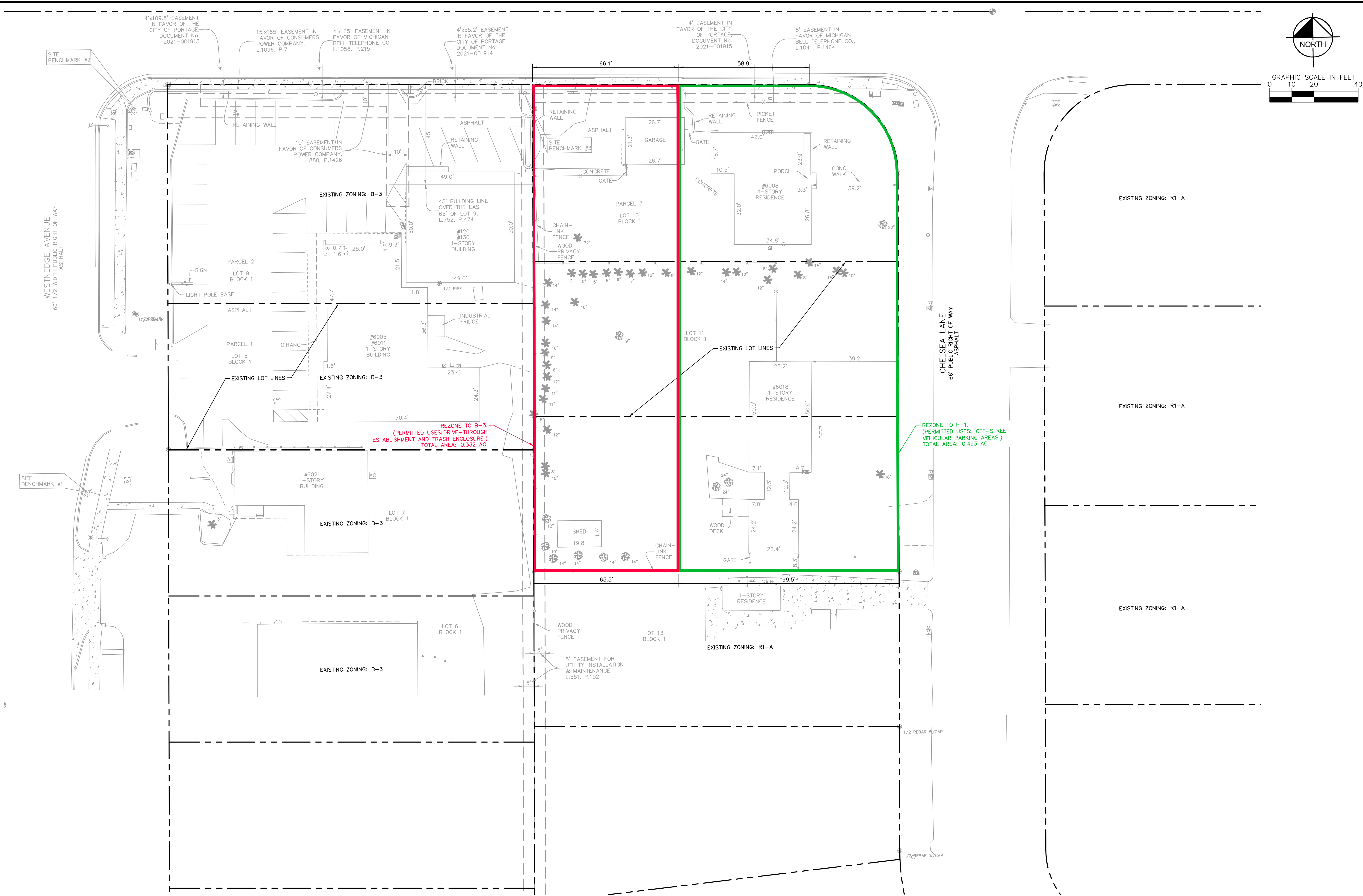
Since the purchase of the southeast corner expanded, we have done our best to keep the spaces occupied mostly with short-term pop-up tenants. The physical maintenance and access dysfunction are becoming very difficult to manage. The roofs, HVAC and parking lots are past their useful lives. They can no longer be repaired. This rezoning to B-3 General Business and P-1 Vehicular Parking will allow the property to be redeveloped and improve the tenant mix, access, traffic flow and tax base for our community. It will also trigger further redevelopment to the south that we hope to share plans of soon.

Thank you for your consideration. Representatives from the Meyer C. Weiner Company and Raising Cane's will be available to answer questions.

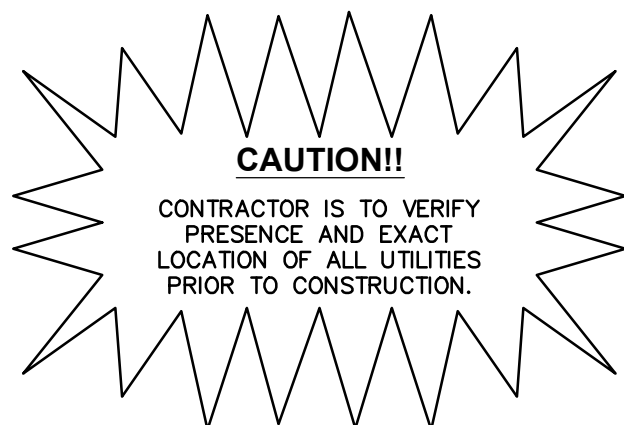
Respectfully,

Timothy A. Timmons  
Meyer C. Weiner Company





| ZONING SUMMARY TABLE |                 |                                             |
|----------------------|-----------------|---------------------------------------------|
| AREA:                | PERMITTED USES: |                                             |
| REZONE TO B-3        | 0.332 AC        | DRIVE-THROUGH ESTABLISHMENT TRASH ENCLOSURE |
| REZONE TO P-1        | 0.493 AC        | OFF-STREET VEHICULAR PARKING                |



Restaurant Support Office  
6800 Bishop Road, Plano, TX 75024  
Tele: 972-769-3100 Fax: 972-769-3101

STORE:  
**RAISING CANE'S RESTAURANT**  
WESTNEDGE & MILHAM  
PORTAGE, MI 49002  
PROTOTYPE 4-V-AV  
SCHEME: STANDARD - B  
STORE #C1085

PROFESSIONAL OF RECORD: KURT L. SCHMITZ  
**ARCHITECTS, INC.**  
Lakewood, Ohio 44107  
17710 Detroit Avenue  
Phone (216) 521-5134 Fax (216) 521-4824  
www.adaarchitects.cc

FOR REVIEW ONLY

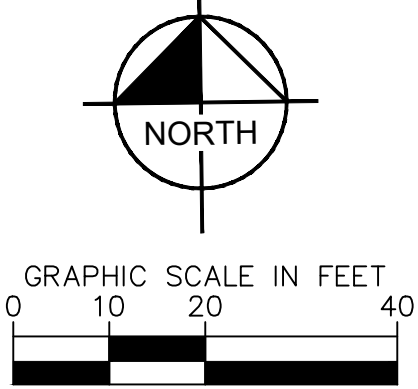
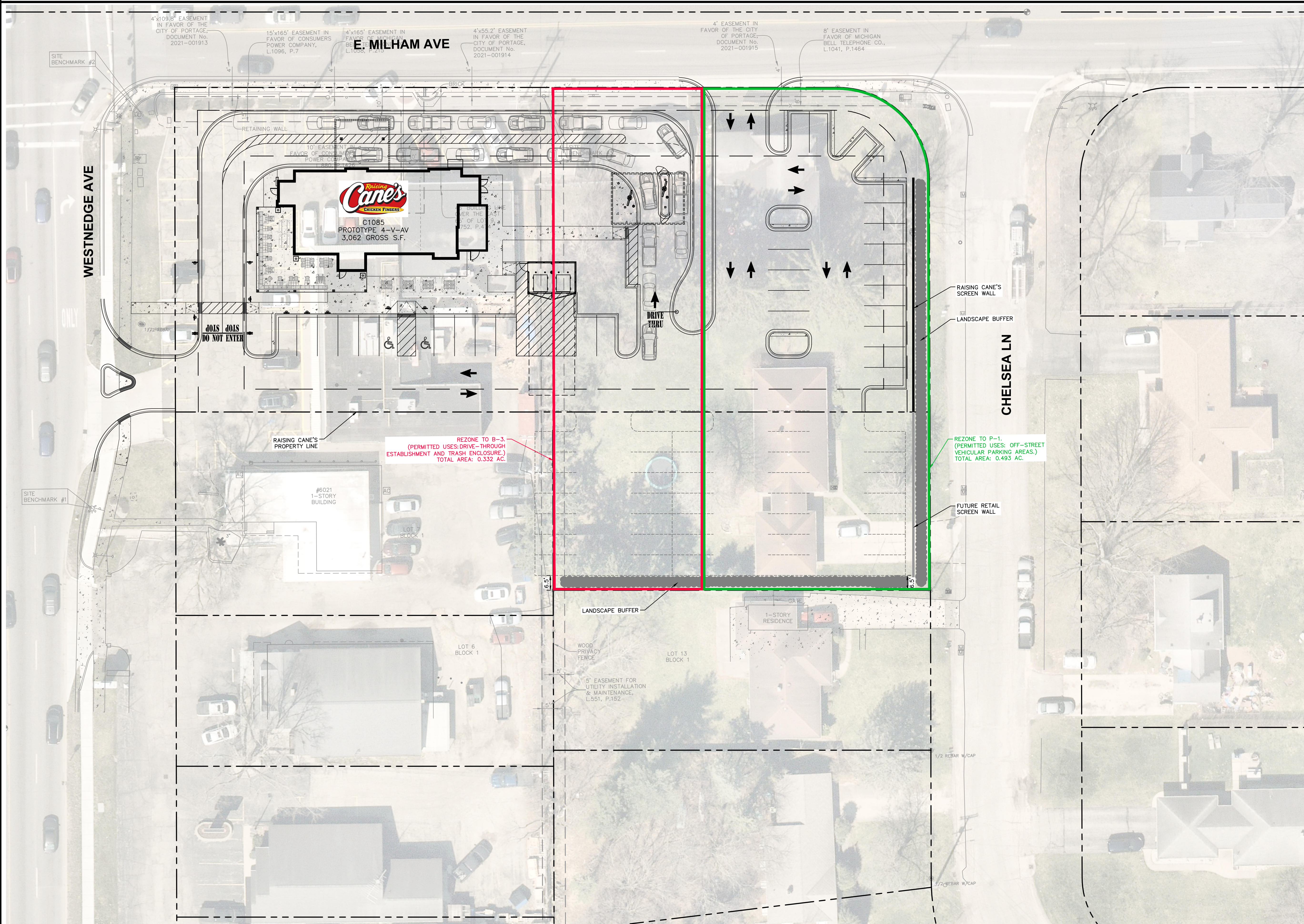
ENGINEER INFORMATION:  
**Kimley»Horn**  
2023 KIMLEY-HORN AND ASSOCIATES, INC.  
4201 WINFIELD RD, WARRENVILLE IL 60555  
PHONE: 630-487-5550  
WWW.KIMLEY-HORN.COM

KH JOB NO. 168418045

| SHEET REVISIONS |      |      |
|-----------------|------|------|
| #               | DATE | TYPE |
| 1               |      |      |
| 2               |      |      |
| 3               |      |      |
| 4               |      |      |
| 5               |      |      |
| 6               |      |      |
| 7               |      |      |
| 8               |      |      |
| 9               |      |      |
| 10              |      |      |

**PROPOSED ZONING EXHIBIT**  
DATE 11/02/2023  
JOB NO. 168418045  
**EXH.**  
SHEET NO.





Restaurant Support Office  
6800 Bishop Road, Plano, TX 75024  
Tele: 972-769-3100 Fax: 972-769-3101

STORE:

RAISING CANE'S  
RESTAURANT  
WESTNEDGE & MILHAM  
PORTAGE, MI 49002  
PROTOTYPE 4-V-AV  
SCHEME: STANDARD - B  
STORE #C1085

PROFESSIONAL OF RECORD:

KURT L. SCHMITZ

ARCHITECTS, INC.

17710 Detroit Avenue  
Lakewood, Ohio 44107  
Phone (216) 521-5134  
Fax (216) 521-4824  
www.adaarchitects.cc

FOR REVIEW ONLY

ENGINEER INFORMATION:

Kimley»Horn

2023 KIMLEY-HORN AND ASSOCIATES, INC.  
4201 WINFIELD RD, WARRENVILLE, IL 60555  
PHONE: 630-487-5550  
WWW.KIMLEY-HORN.COM

KH JOB NO. 168418045

SHEET REVISIONS

| #  | DATE | TYPE |
|----|------|------|
| 1  |      |      |
| 2  |      |      |
| 3  |      |      |
| 4  |      |      |
| 5  |      |      |
| 6  |      |      |
| 7  |      |      |
| 8  |      |      |
| 9  |      |      |
| 10 |      |      |

PROPOSED ZONING  
SITE OVERLAY  
EXHIBIT

DATE 11/02/2023

JOB NO. 168418045

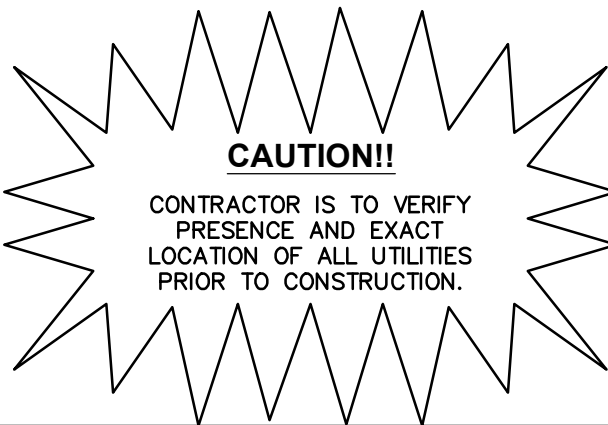
EXH.

SHEET NO.

ZONING SUMMARY TABLE

PROPOSED RAISING CANE'S LEASE AREA = 1.07 AC

| AREA:                     | PERMITTED USES:                                |
|---------------------------|------------------------------------------------|
| REZONE TO B-3<br>0.332 AC | DRIVE-THROUGH ESTABLISHMENT<br>TRASH ENCLOSURE |
| REZONE TO P-1<br>0.493 AC | OFF-STREET VEHICULAR PARKING                   |







## MEMORANDUM

To: LuAron Foster  
Raising Cane's Chicken Fingers

From: Emma Albers, P.E., PTOE  
Kimley-Horn and Associates, Inc.

Date: October 17, 2023

Subject: Traffic Review for Proposed Raising Cane's  
Portage, MI

---

Kimley-Horn was retained by Raising Cane's to review existing and future traffic conditions related to the proposed Raising Cane's restaurant at the southeast corner of Milham Avenue/Westnedge Avenue in Portage, Michigan. A site location map is provided on **Exhibit 1**.

This memorandum summarizes the evaluation of the existing and projected future traffic conditions on the surrounding roadways. The analysis of existing conditions is based on traffic counts conducted at key intersections providing access to the site. The analysis of future conditions considers the addition of site-generated traffic. Based on a review of existing and future operational conditions at key intersections providing access to the site, cut-through traffic from the proposed site is not expected within the adjacent residential neighborhood. As detailed in the *Capacity Analysis* section of this report, traffic exiting the proposed Raising Cane's to Milham Avenue is expected to experience a reasonable level of delay. The anticipated level of delay (an average of less than 20 seconds per vehicle during the two peak hours) is not expected to deter vehicles from completing a northbound left-turn out of the site. Additionally, site-generated traffic is not expected to materially impact nearby intersections, as shown by the comparison of delay between existing and build conditions.

## EXISTING TRAFFIC VOLUMES

To establish existing traffic volumes in the area, turning movement count data was collected in September 2023 at the following intersections:

- Milham Avenue / Westnedge Avenue
- Milham Avenue / Chelsea Lane
- Milham Avenue / Salem Lane

These counts were conducted during the weekday evening (4:00 to 6:00 PM), and Saturday midday (11:00 AM to 1:00 PM) peak periods. These count periods were selected to capture the peak travel periods in the area that coincide with the hours of operation of the proposed Raising Cane's. The traffic count data indicates that peak hour traffic volumes occur within the study area from 4:45-5:45 PM during a typical weekday and 11:30 AM-12:30 PM during a typical Saturday. Peak hour traffic volumes are summarized on **Exhibit 2**.

## DEVELOPMENT CHARACTERISTICS

The proposed Raising Cane's would include a 3,062 square-foot restaurant with drive-through window. The drive-through would provide two order lanes that continue to two pick-up lanes. Access to the site would be provided by two access driveways: a right-in/right-out only driveway along Westnedge Avenue (Access A) and a full-access driveway along Milham Avenue (Access B).

### Trip Generation

The Institute of Transportation Engineers (ITE) maintains the leading industry source for trip generation information for a wide variety of land uses based on years of traffic data from across the country. This source is known as the Trip Generation Manual, 11<sup>th</sup> Edition. To estimate trips generated by the proposed site, data was referenced from this manual as summarized in **Table 1**.

Table 1. ITE Trip Generation Data

| ITE Land Use                                             | Unit         | Weekday Daily             | Weekday PM Peak Hour      | Saturday Midday Peak Hour |
|----------------------------------------------------------|--------------|---------------------------|---------------------------|---------------------------|
| Fast Food Restaurant with Drive-Through Window (LUC 934) | Per 1,000 SF | 467.48X<br>50% in/50% out | 33.03X<br>52% in/ 48% out | 55.25X<br>51% in/ 49% out |

X = square feet (SF) of development

For purposes of this study, site generated trips are expected to exhibit multiple routing patterns when traveling to and from the subject site, as described below:

- **Pass-by** – Pass-by traffic reflects the travel patterns of motorists who are already traveling on the adjacent study roadways and stop at the site en route to another destination. Data referenced in the appendix of the ITE Trip Generation Manual, 11<sup>th</sup> Edition suggests that at a Fast-Food Restaurant with Drive-Through Window (LUC 934), roughly 55 percent of vehicles during the weekday evening peak hour are pass-by trips. ITE data is not provided for daily pass-by trips; therefore, the weekday evening pass-by percentage of 55 percent was applied. Pass-by data is also not provided for the Saturday midday peak period, so the weekday evening pass-by rate of 55 percent was assumed.
- **Primary Trips** – Vehicles that travel to the subject development as their primary destination or trip purpose before returning to their origin are called "primary trips." Primary trips reflect new traffic volumes generated by the proposed development that would approach and depart on the same route. Trips to/from the site that are not pass-by trips are expected to be primary trips.

The site-generated trips estimated for the peak hours were rounded to the nearest multiple of five and daily trips were rounded to the nearest multiple of ten. Projected site traffic volumes are summarized in **Table 2**.



Table 2. Site-Generated Traffic Projections

| Land Use                                                 | Size     | Daily -<br>Weekday | Weekday PM<br>Peak Hour |     |       | Saturday Midday<br>Peak Hour |     |       |
|----------------------------------------------------------|----------|--------------------|-------------------------|-----|-------|------------------------------|-----|-------|
|                                                          |          |                    | In                      | Out | Total | In                           | Out | Total |
| Fast Food Restaurant with Drive-Through Window (LUC 934) | 3,062 SF | 1,430              | 50                      | 50  | 100   | 85                           | 85  | 170   |
| Pass-By Trips                                            |          | -790               | -30                     | -30 | -60   | -45                          | -45 | -90   |
| Net New Site Trips                                       |          | 640                | 20                      | 20  | 40    | 40                           | 40  | 80    |

### Trip Distribution and Assignment

The estimated distribution of site-generated traffic on the surrounding roadway network as it approaches and departs the site is a function of several variables, such as the nature of surrounding land uses, prevailing traffic volumes/patterns, characteristics of the street system, and the ease with which motorists can travel over various sections of that system. The anticipated directional distributions estimated for the primary and pass-by trips are outlined in **Table 3**.

Table 3. Estimated Trip Distribution

| Traveling to/from         | Estimated Trip Distribution |                            |
|---------------------------|-----------------------------|----------------------------|
|                           | Primary Trips               | Pass-By Trips <sup>1</sup> |
| West on Milham Avenue     | 15%                         | 15%                        |
| East on Milham Avenue     | 10%                         | 10%                        |
| North on Westnedge Avenue | 40%                         | 35%                        |
| South on Westnedge Avenue | 35%                         | 40%                        |
| Total                     | 100%                        | 100%                       |

<sup>1</sup>Pass-by trips are categorized by the trip's origin

Following trip distribution, site-generated trips were then routed to the study intersections and proposed site driveways. Similar to trip distribution, trip assignment considers ease of access, driveway proximity, characteristics of the nearby intersections, and traffic conditions on the adjacent roadways. For example, a vehicle destined for westbound Milham Avenue is unlikely to exit via Access A (Westnedge Avenue) due to the spacing between Access A and the northbound left-turn lane at Milham Avenue. Therefore, vehicles destined for westbound Milham Avenue were assumed to make a northbound left-turn out of Access B to Milham Avenue. Based on the trip distribution in Table 3 and trip assignment assumptions, the site-generated primary trips and pass-by trips are illustrated in **Exhibit 3** and **Exhibit 4**, respectively. The total site-generated trips are depicted in **Exhibit 5**.

## BUILD TRAFFIC VOLUMES

To develop future traffic projections at the study intersections after the proposed restaurant is operational, the total site-generated trips (Exhibit 5) were added to the existing traffic volumes (Exhibit 2). The future build traffic projections are provided in **Exhibit 6**.

## CAPACITY ANALYSIS

Capacity analyses were conducted to assess existing and future operating conditions at the study intersections during the weekday evening and Saturday midday peak hours using *Synchro 11* software. The capacity of an intersection quantifies its ability to accommodate traffic volumes and is expressed in terms of level of service (LOS), measured in average delay per vehicle. LOS grades range from A to F, with LOS A as the highest (best traffic flow and least delay), LOS E as saturated or at-capacity conditions, and LOS F as the lowest (oversaturated conditions).

The LOS grades shown below, which are provided in the Transportation Research Board's Highway Capacity Manual (HCM), quantify and categorize the driver's discomfort, frustration, fuel consumption, and travel times experienced as a result of intersection control and the resulting traffic queuing. A detailed description of each LOS rating can be found in **Table 4**.

Table 4. Level of Service Grading Descriptions

| Level of Service | Description                                                                                                                                            |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| A                | Minimal control delay; traffic operates at primarily free-flow conditions; unimpeded movement within traffic stream.                                   |
| B                | Minor control delay at signalized intersections; traffic operates at a fairly unimpeded level with slightly restricted movement within traffic stream. |
| C                | Moderate control delay; movement within traffic stream more restricted than at LOS B; formation of queues contributes to lower average travel speeds.  |
| D                | Considerable control delay that may be substantially increased by small increases in flow; average travel speeds continue to decrease.                 |
| E                | High control delay; average travel speed no more than 33 percent of free flow speed.                                                                   |
| F                | Extremely high control delay; extensive queuing and high volumes create exceedingly restricted traffic flow.                                           |

<sup>1</sup>Highway Capacity Manual, 6th Edition.

The range of control delay for each rating (as detailed in the HCM) is shown in **Table 5**. Because signalized intersections are expected to carry a larger volume of vehicles and stopping is required during red time, note that higher delays are tolerated for the corresponding LOS ratings.

Table 5. Level of Service Grading Criteria

| Level of Service <sup>1</sup> | Average Control Delay (s/veh) at: |                          |
|-------------------------------|-----------------------------------|--------------------------|
|                               | Unsignalized Intersections        | Signalized Intersections |
| A                             | 0 – 10                            | 0 – 10                   |
| B                             | > 10 – 15                         | > 10 – 20                |
| C                             | > 15 – 25                         | > 20 – 35                |
| D                             | > 25 – 35                         | > 35 – 55                |
| E                             | > 35 – 50                         | > 55 – 80                |
| F <sup>2</sup>                | > 50                              | > 80                     |

<sup>1</sup>Highway Capacity Manual, 6th Edition

<sup>2</sup>All movements with a Volume to Capacity (v/C) ratio greater than 1 receive a rating of LOS F.

Based on these standards, capacity results were identified for the study intersections under existing and build conditions. The results of capacity analysis for existing conditions are summarized in **Table 6**. In this table, operation on each approach is quantified according to the average delay per vehicle and the corresponding level of service. The results are based on Synchro's HCM 6th Edition reports. Copies of the Synchro reports are provided as an attachment to this memo.

Table 6. Summary of Capacity Results

| Intersection                       | Existing             |     |                    |     | Build                |     |                    |     |
|------------------------------------|----------------------|-----|--------------------|-----|----------------------|-----|--------------------|-----|
|                                    | Weekday PM Peak Hour |     | Saturday Peak Hour |     | Weekday PM Peak Hour |     | Saturday Peak Hour |     |
|                                    | Delay (s/veh)        | LOS | Delay (s/veh)      | LOS | Delay (s/veh)        | LOS | Delay (s/veh)      | LOS |
| Milham Avenue / Westnedge Avenue ★ |                      |     |                    |     |                      |     |                    |     |
| Eastbound                          | 55                   | E   | 55                 | E   | 60                   | E   | 55                 | E   |
| Westbound                          | 62                   | E   | 63                 | E   | 63                   | E   | 61                 | E   |
| Northbound                         | 23                   | C   | 32                 | C   | 25                   | C   | 34                 | C   |
| Southbound                         | 20                   | B   | 27                 | C   | 21                   | C   | 28                 | C   |
| Intersection                       | C                    | 32  | 39                 | D   | 33                   | C   | 40                 | D   |
| Milham Avenue / Chelsea Lane △     |                      |     |                    |     |                      |     |                    |     |
| Westbound (Left)                   | 8                    | A   | 8                  | A   | 8                    | A   | 8                  | A   |
| Northbound                         | 13                   | B   | 15                 | B   | 11                   | B   | 12                 | B   |
| Milham Avenue / Salem Lane △       |                      |     |                    |     |                      |     |                    |     |
| Westbound (Left)                   | 8                    | A   | 8                  | A   | 8                    | A   | 8                  | A   |
| Northbound                         | 11                   | B   | 13                 | B   | 11                   | B   | 13                 | B   |
| Westnedge Avenue / Access A △      |                      |     |                    |     |                      |     |                    |     |
| Westbound (Right)                  | N/A                  |     |                    |     | 16                   | C   | 16                 | C   |
| Milham Avenue / Access B △         |                      |     |                    |     |                      |     |                    |     |
| Westbound (Left)                   | N/A                  |     |                    |     | 8                    | A   | 9                  | A   |
| Northbound                         |                      |     |                    |     | 14                   | B   | 20                 | C   |

★ Signalized Intersection      △ Minor-Leg Stop-Controlled Intersection

The signalized intersection of Milham Avenue/Westnedge Avenue is currently operating at an acceptable level of service overall during both peak hours. The eastbound and westbound approaches currently operate at LOS E, which is not uncommon for side street approaches, as the majority of available green time during the signal cycle is allocated to the mainline (northbound and southbound) approaches. At the intersections of Milham Avenue/Chelsea Lane and Milham Avenue/Salem Lane, the northbound approaches currently operate at LOS B during both peak hours, indicating that there are adequate gaps in traffic along Milham Avenue for vehicles to turn from the side street. It is likely that the signal at Westnedge Avenue helps meter traffic along Milham Avenue.

With the addition of site-generated traffic, the intersection of Milham Avenue/Westnedge Avenue is expected to operate with similar levels of service and delay as existing conditions. The level of service

at all approaches is expected to remain the same. Consistent with existing conditions, the 95<sup>th</sup> percentile queue for the westbound through movement is projected to be approximately six vehicles (150 feet), which does not extend to the proposed Raising Cane's driveway (Access B). Therefore, traffic at the Milham Avenue/Westnedge Avenue intersection is not expected to block exiting traffic from the proposed Access B.

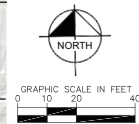
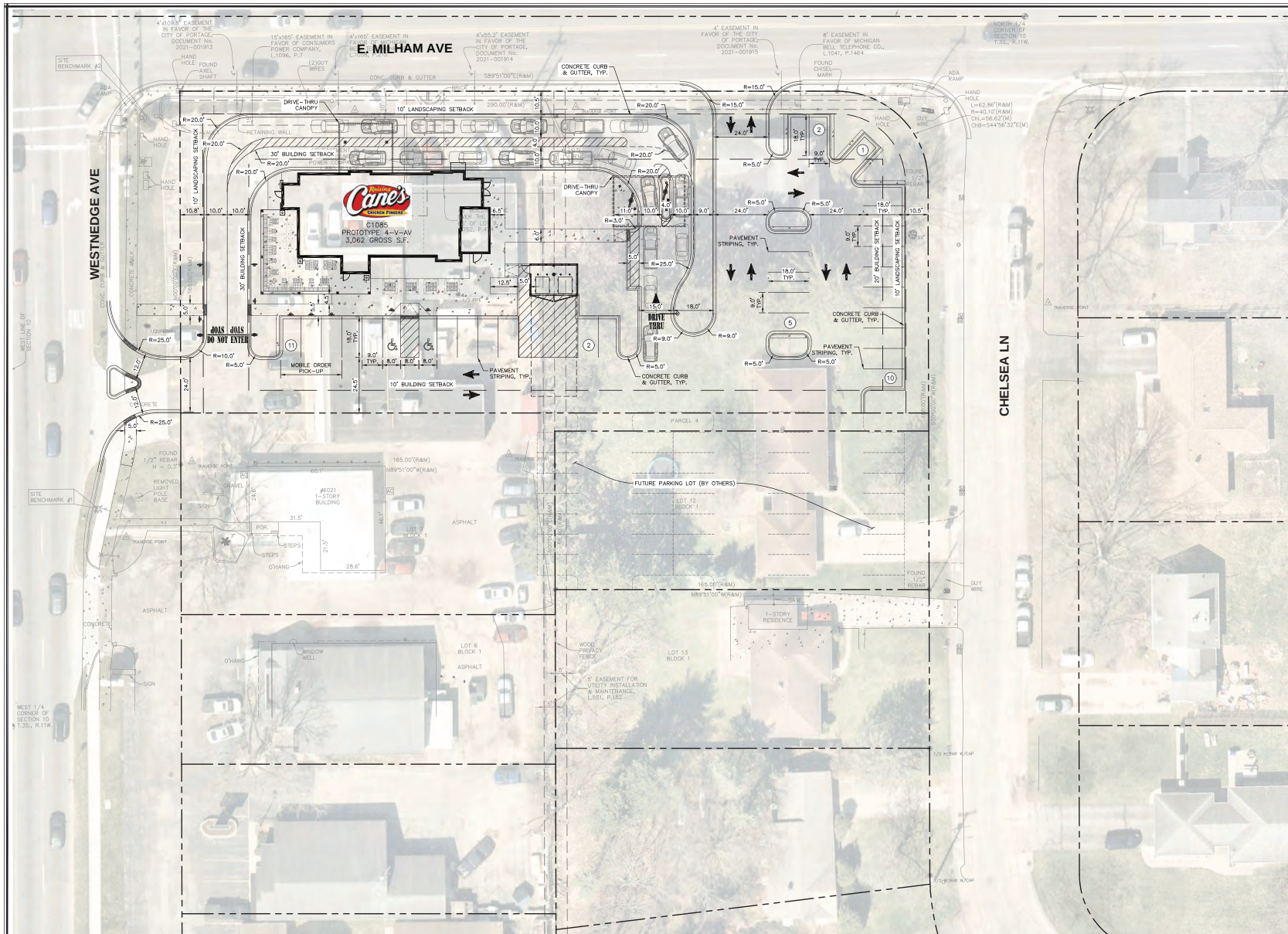
The exit movements at the two site driveways are expected to operate at LOS C or better during both peak hours, which is a reasonable and typical level of delay for drivers to experience. Therefore, it is expected that vehicles turning left from Access B will wait to complete their normal left-turn movement as opposed to attempting a right-turn and then cutting through the adjacent residential neighborhood via Chelsea Lane.

## SUMMARY

Based on a review of existing and build conditions, the traffic from the proposed Raising Cane's is not expected to materially impact operations within the area. Levels of delay expected at the proposed driveways are typical and are not expected to lead to traffic rerouting through nearby neighborhoods. Additionally, the level of traffic generated by the site is expected to have a minimal increase in the total volume of traffic at the signalized intersection of Milham Avenue/Westnedge Avenue.

Attachments:    Site Plan  
                      Exhibit 1 – Site Location Map  
                      Exhibit 2 – Existing (2023) Traffic Volumes  
                      Exhibit 3 – Site Trip Assignment – Primary Trips  
                      Exhibit 4 – Site Trip Assignment – Passby Trips  
                      Exhibit 5 – Site Trip Assignment – Total  
                      Exhibit 6 – Build (2023) Traffic Projections  
                      Capacity Reports





PROTOTYPE ISSUE DATE: 11/20/2023  
 STORE:  
 RAISING CANE'S  
 RESTAURANT  
 WESTLEDGE & MILHAM  
 PORTAGE, MI 49002  
 PROTOTYPE 4-V-AV  
 SCHEME: STANDARD - B  
 STORE #C1085

ARCHITECTS, INC.  
 177 S. MAIN ST., SUITE 200  
 PORTAGE, MI 49002  
 Phone (268) 621-5134 Fax (268) 621-4824  
 www.adaarchitects.com

FOR REVIEW ONLY

ENGINEER INFORMATION:  
**Kimley-Horn**  
 2020 KIMLEY-HORN ASSOCIATES, INC.  
 4201 WINFIELD RD., WARRENVILLE, IL 60555  
 PHONE: 630-487-5000  
 WWW.KIMLEY-HORN.COM

KH JOB NO. 168418045

| SHEET REVISIONS | #  | DATE | TYPE |
|-----------------|----|------|------|
|                 | 1  |      |      |
|                 | 2  |      |      |
|                 | 3  |      |      |
|                 | 4  |      |      |
|                 | 5  |      |      |
|                 | 6  |      |      |
|                 | 7  |      |      |
|                 | 8  |      |      |
|                 | 9  |      |      |
|                 | 10 |      |      |

**SITE PLAN  
EXHIBIT**

DATE 08/01/2023  
 JOB NO. 168418045

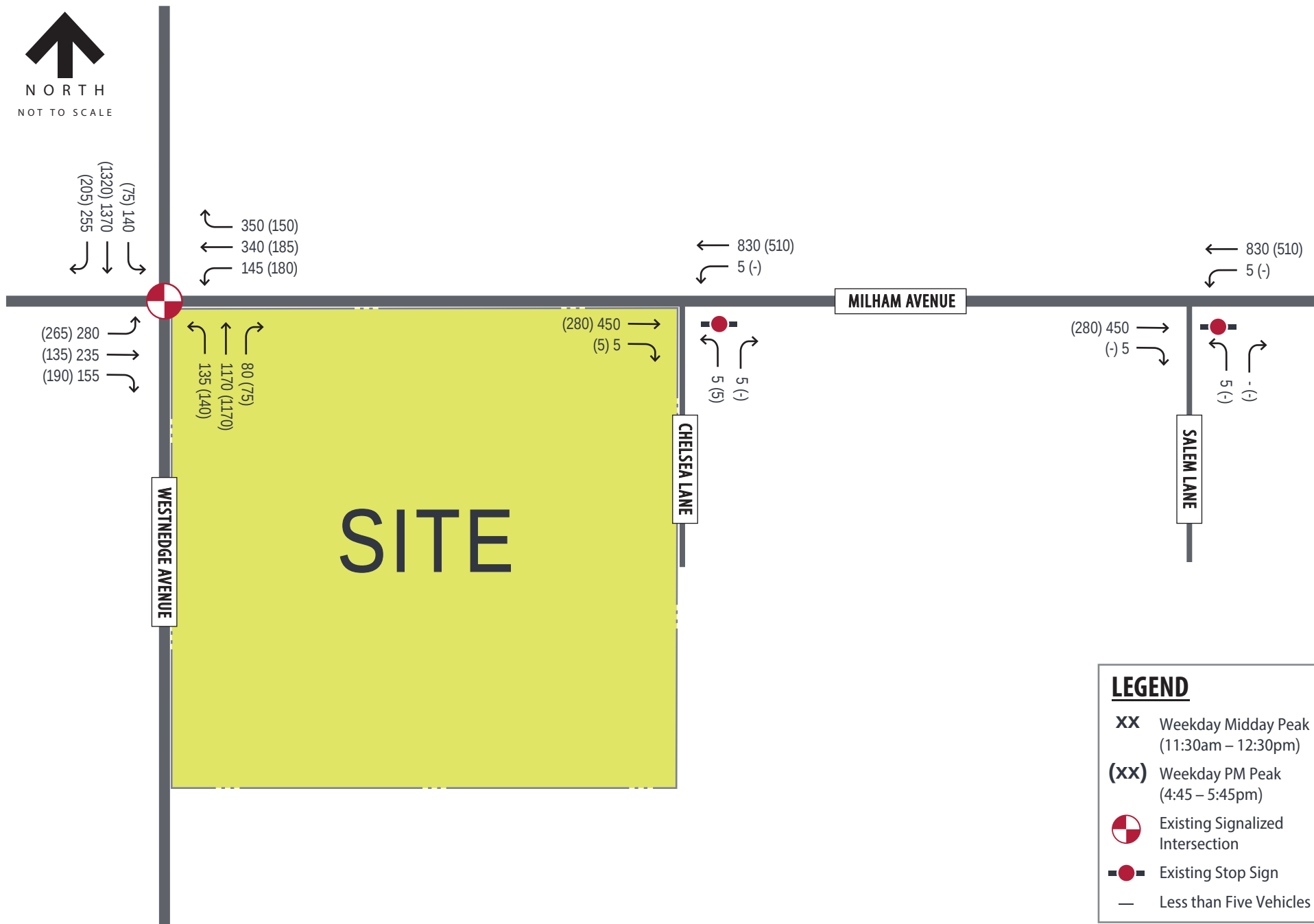
**EXH.**

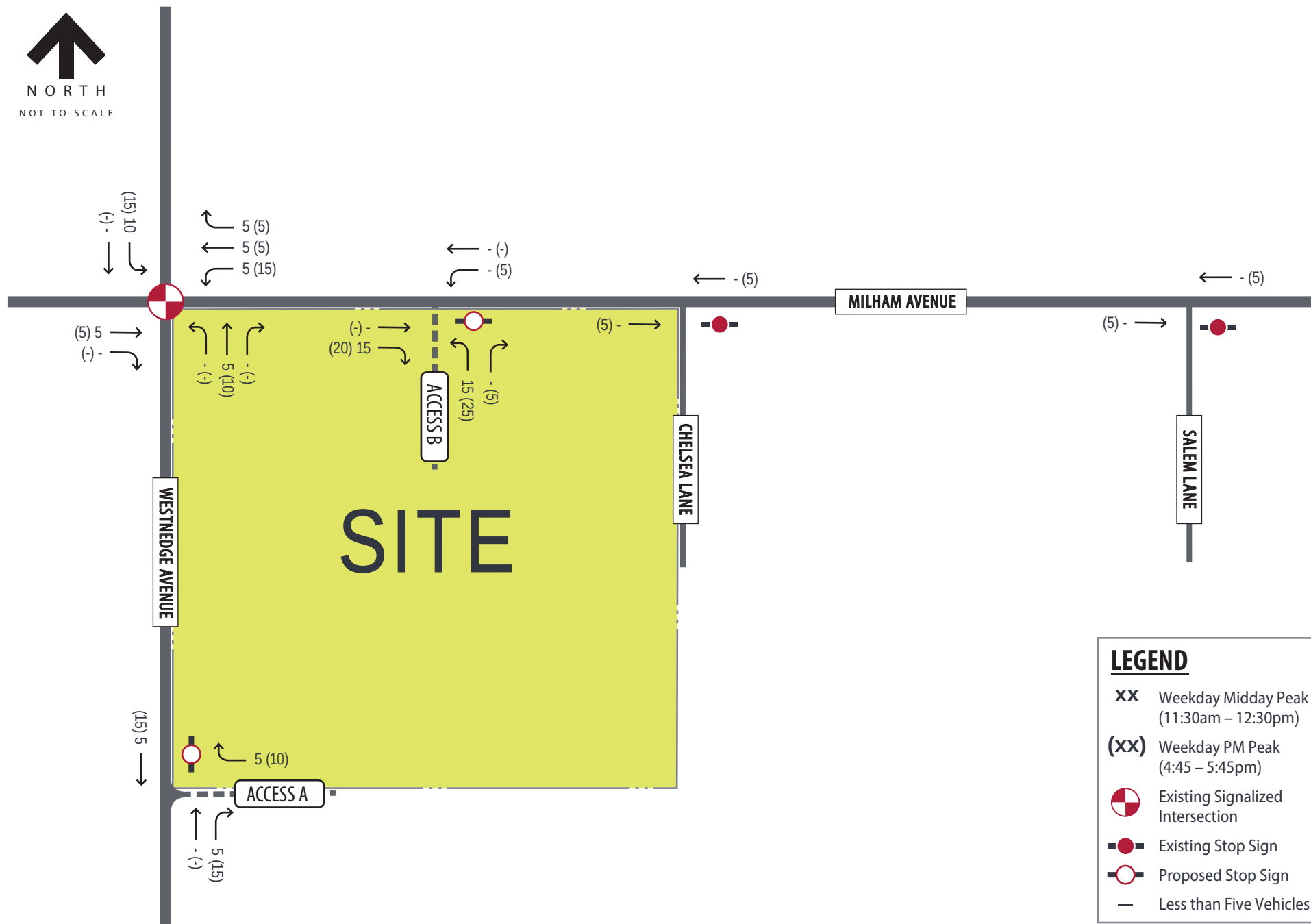
SHEET NO.



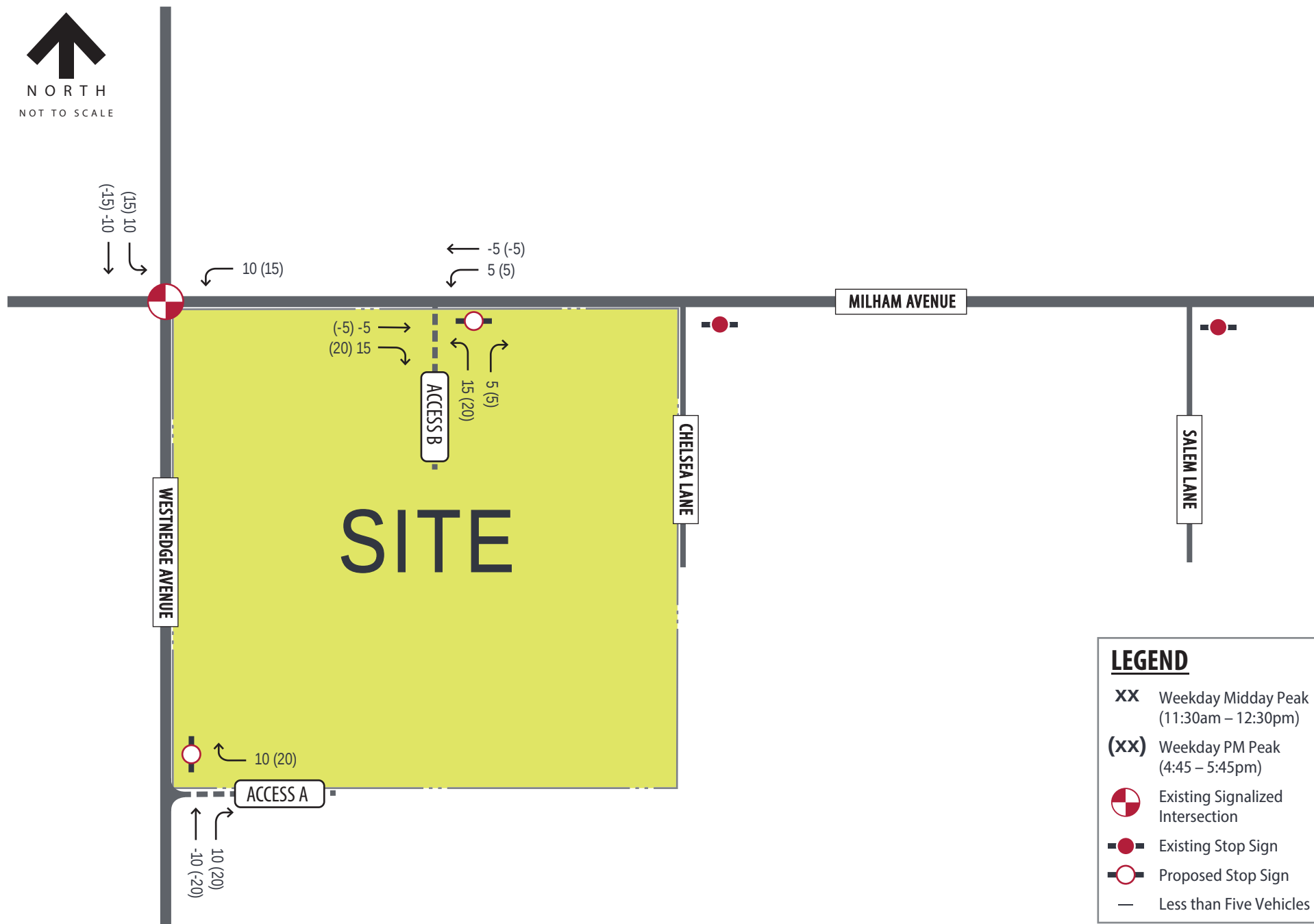


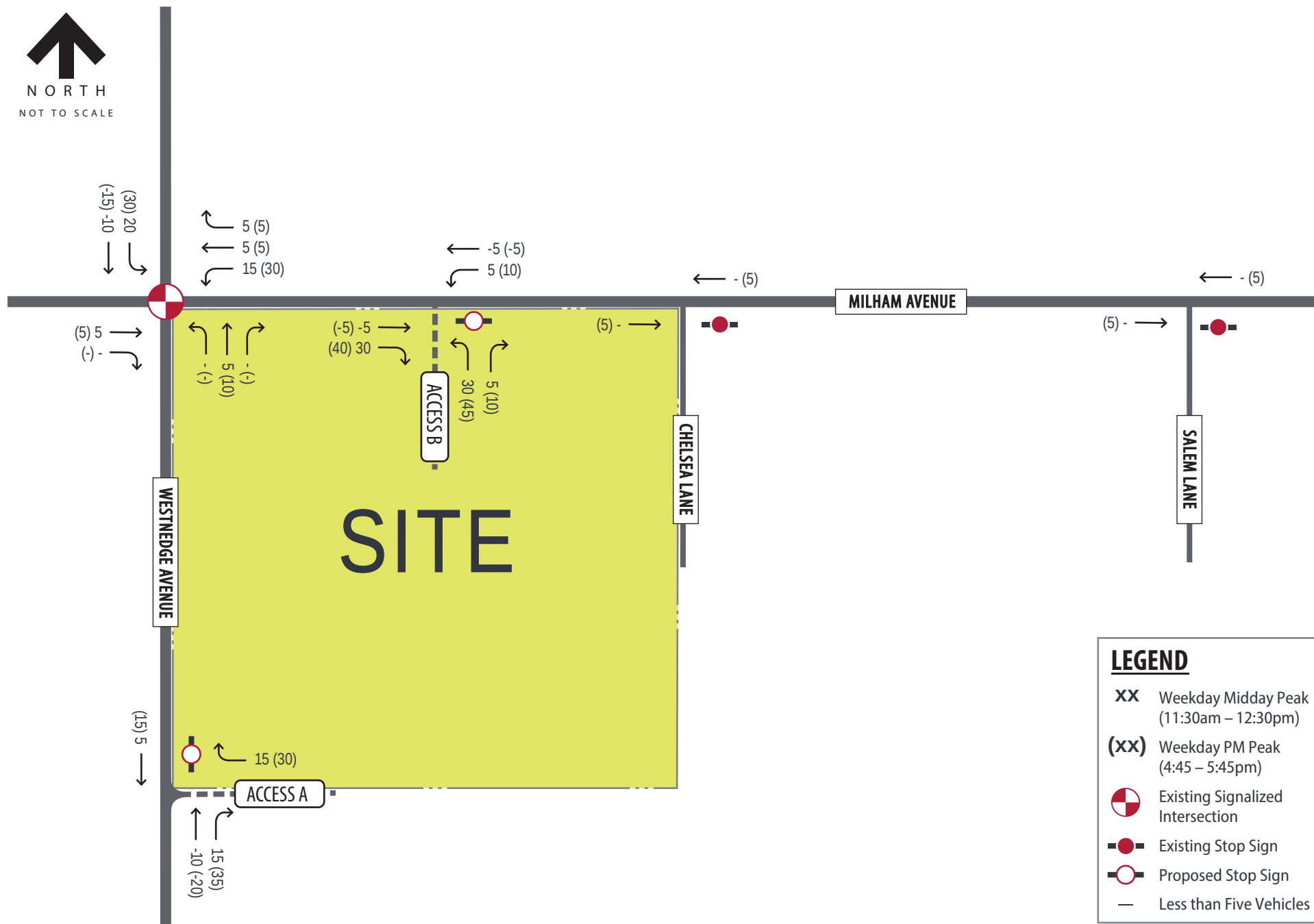
















# HCM 6th Signalized Intersection Summary

## 100: Westnedge Avenue & Milham Avenue

Existing (2023) Traffic Volumes

PM Peak Hour

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |  |   |  |  |  |  |  |
| Traffic Volume (veh/h)       | 265                                                                               | 135                                                                               | 190                                                                               | 180                                                                               | 185                                                                               | 150                                                                               | 140                                                                                 | 1170                                                                                | 75                                                                                  | 75                                                                                  | 1320                                                                                | 205                                                                                 |
| Future Volume (veh/h)        | 265                                                                               | 135                                                                               | 190                                                                               | 180                                                                               | 185                                                                               | 150                                                                               | 140                                                                                 | 1170                                                                                | 75                                                                                  | 75                                                                                  | 1320                                                                                | 205                                                                                 |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 273                                                                               | 139                                                                               | 196                                                                               | 186                                                                               | 191                                                                               | 155                                                                               | 144                                                                                 | 1206                                                                                | 77                                                                                  | 77                                                                                  | 1361                                                                                | 211                                                                                 |
| Peak Hour Factor             | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 330                                                                               | 493                                                                               | 370                                                                               | 238                                                                               | 399                                                                               | 265                                                                               | 169                                                                                 | 2163                                                                                | 1074                                                                                | 98                                                                                  | 2904                                                                                | 1053                                                                                |
| Arrive On Green              | 0.10                                                                              | 0.14                                                                              | 0.14                                                                              | 0.07                                                                              | 0.11                                                                              | 0.11                                                                              | 0.09                                                                                | 0.61                                                                                | 0.61                                                                                | 0.05                                                                                | 0.57                                                                                | 0.57                                                                                |
| Sat Flow, veh/h              | 3456                                                                              | 3554                                                                              | 1585                                                                              | 3456                                                                              | 3554                                                                              | 1585                                                                              | 1781                                                                                | 3554                                                                                | 1585                                                                                | 1781                                                                                | 5106                                                                                | 1585                                                                                |
| Grp Volume(v), veh/h         | 273                                                                               | 139                                                                               | 196                                                                               | 186                                                                               | 191                                                                               | 155                                                                               | 144                                                                                 | 1206                                                                                | 77                                                                                  | 77                                                                                  | 1361                                                                                | 211                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1728                                                                              | 1777                                                                              | 1585                                                                              | 1728                                                                              | 1777                                                                              | 1585                                                                              | 1781                                                                                | 1777                                                                                | 1585                                                                                | 1781                                                                                | 1702                                                                                | 1585                                                                                |
| Q Serve(g_s), s              | 10.9                                                                              | 4.9                                                                               | 15.1                                                                              | 7.4                                                                               | 7.1                                                                               | 12.6                                                                              | 11.1                                                                                | 28.1                                                                                | 2.3                                                                                 | 6.0                                                                                 | 21.9                                                                                | 7.2                                                                                 |
| Cycle Q Clear(g_c), s        | 10.9                                                                              | 4.9                                                                               | 15.1                                                                              | 7.4                                                                               | 7.1                                                                               | 12.6                                                                              | 11.1                                                                                | 28.1                                                                                | 2.3                                                                                 | 6.0                                                                                 | 21.9                                                                                | 7.2                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 330                                                                               | 493                                                                               | 370                                                                               | 238                                                                               | 399                                                                               | 265                                                                               | 169                                                                                 | 2163                                                                                | 1074                                                                                | 98                                                                                  | 2904                                                                                | 1053                                                                                |
| V/C Ratio(X)                 | 0.83                                                                              | 0.28                                                                              | 0.53                                                                              | 0.78                                                                              | 0.48                                                                              | 0.58                                                                              | 0.85                                                                                | 0.56                                                                                | 0.07                                                                                | 0.79                                                                                | 0.47                                                                                | 0.20                                                                                |
| Avail Cap(c_a), veh/h        | 481                                                                               | 723                                                                               | 473                                                                               | 358                                                                               | 597                                                                               | 353                                                                               | 261                                                                                 | 2163                                                                                | 1074                                                                                | 286                                                                                 | 2904                                                                                | 1053                                                                                |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 62.2                                                                              | 54.0                                                                              | 46.9                                                                              | 64.1                                                                              | 58.3                                                                              | 53.8                                                                              | 62.4                                                                                | 16.2                                                                                | 7.6                                                                                 | 65.3                                                                                | 17.7                                                                                | 9.1                                                                                 |
| Incr Delay (d2), s/veh       | 7.7                                                                               | 0.3                                                                               | 1.2                                                                               | 6.2                                                                               | 0.9                                                                               | 2.0                                                                               | 14.9                                                                                | 1.0                                                                                 | 0.1                                                                                 | 12.9                                                                                | 0.5                                                                                 | 0.4                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 5.1                                                                               | 2.2                                                                               | 6.1                                                                               | 3.5                                                                               | 3.2                                                                               | 5.2                                                                               | 5.7                                                                                 | 11.4                                                                                | 0.8                                                                                 | 3.1                                                                                 | 8.6                                                                                 | 2.5                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d),s/veh         | 69.8                                                                              | 54.3                                                                              | 48.1                                                                              | 70.4                                                                              | 59.2                                                                              | 55.9                                                                              | 77.3                                                                                | 17.3                                                                                | 7.8                                                                                 | 78.2                                                                                | 18.3                                                                                | 9.5                                                                                 |
| LnGrp LOS                    | E                                                                                 | D                                                                                 | D                                                                                 | E                                                                                 | E                                                                                 | E                                                                                 | E                                                                                   | B                                                                                   | A                                                                                   | E                                                                                   | B                                                                                   | A                                                                                   |
| Approach Vol, veh/h          | 608                                                                               |                                                                                   |                                                                                   | 532                                                                               |                                                                                   |                                                                                   | 1427                                                                                |                                                                                     |                                                                                     | 1649                                                                                |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 59.3                                                                              |                                                                                   |                                                                                   | 62.1                                                                              |                                                                                   |                                                                                   | 22.8                                                                                |                                                                                     |                                                                                     | 20.0                                                                                |                                                                                     |                                                                                     |
| Approach LOS                 | E                                                                                 |                                                                                   |                                                                                   | E                                                                                 |                                                                                   |                                                                                   | C                                                                                   |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 12.2                                                                              | 89.7                                                                              | 14.2                                                                              | 23.9                                                                              | 17.8                                                                              | 84.1                                                                              | 17.9                                                                                | 20.2                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                                 | 4.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 22.5                                                                              | 56.5                                                                              | 14.5                                                                              | 28.5                                                                              | 20.5                                                                              | 58.5                                                                              | 19.5                                                                                | 23.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 8.0                                                                               | 30.1                                                                              | 9.4                                                                               | 17.1                                                                              | 13.1                                                                              | 23.9                                                                              | 12.9                                                                                | 14.6                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.1                                                                               | 10.3                                                                              | 0.2                                                                               | 1.1                                                                               | 0.2                                                                               | 13.6                                                                              | 0.5                                                                                 | 1.1                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th Ctrl Delay           | 31.9                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th LOS                  | C                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

HCM 6th TWSC  
200: Chelsea Lane & Milham Avenue

Existing (2023) Traffic Volumes  
PM Peak Hour

| Intersection             |        |      |        |       |        |      |
|--------------------------|--------|------|--------|-------|--------|------|
| Int Delay, s/veh         | 0.1    |      |        |       |        |      |
| Movement                 | EBT    | EBR  | WBL    | WBT   | NBL    | NBR  |
| Lane Configurations      | ↑↑     |      | ↑      | ↑↑    | ↑      |      |
| Traffic Vol, veh/h       | 280    | 5    | 1      | 510   | 5      | 1    |
| Future Vol, veh/h        | 280    | 5    | 1      | 510   | 5      | 1    |
| Conflicting Peds, #/hr   | 0      | 0    | 0      | 0     | 0      | 0    |
| Sign Control             | Free   | Free | Free   | Free  | Stop   | Stop |
| RT Channelized           | -      | None | -      | None  | -      | None |
| Storage Length           | -      | -    | 25     | -     | 0      | -    |
| Veh in Median Storage, # | 0      | -    | -      | 0     | 0      | -    |
| Grade, %                 | 0      | -    | -      | 0     | 0      | -    |
| Peak Hour Factor         | 94     | 94   | 94     | 94    | 94     | 94   |
| Heavy Vehicles, %        | 2      | 2    | 2      | 2     | 2      | 2    |
| Mvmt Flow                | 298    | 5    | 1      | 543   | 5      | 1    |
|                          |        |      |        |       |        |      |
| Major/Minor              | Major1 |      | Major2 |       | Minor1 |      |
| Conflicting Flow All     | 0      | 0    | 303    | 0     | 575    | 152  |
| Stage 1                  | -      | -    | -      | -     | 301    | -    |
| Stage 2                  | -      | -    | -      | -     | 274    | -    |
| Critical Hdwy            | -      | -    | 4.14   | -     | 6.84   | 6.94 |
| Critical Hdwy Stg 1      | -      | -    | -      | -     | 5.84   | -    |
| Critical Hdwy Stg 2      | -      | -    | -      | -     | 5.84   | -    |
| Follow-up Hdwy           | -      | -    | 2.22   | -     | 3.52   | 3.32 |
| Pot Cap-1 Maneuver       | -      | -    | 1255   | -     | 448    | 867  |
| Stage 1                  | -      | -    | -      | -     | 725    | -    |
| Stage 2                  | -      | -    | -      | -     | 747    | -    |
| Platoon blocked, %       | -      | -    |        | -     |        |      |
| Mov Cap-1 Maneuver       | -      | -    | 1255   | -     | 448    | 867  |
| Mov Cap-2 Maneuver       | -      | -    | -      | -     | 448    | -    |
| Stage 1                  | -      | -    | -      | -     | 725    | -    |
| Stage 2                  | -      | -    | -      | -     | 746    | -    |
|                          |        |      |        |       |        |      |
|                          |        |      |        |       |        |      |
| Approach                 | EB     |      | WB     |       | NB     |      |
| HCM Control Delay, s     | 0      |      | 0      |       | 12.5   |      |
| HCM LOS                  |        |      |        |       | B      |      |
|                          |        |      |        |       |        |      |
|                          |        |      |        |       |        |      |
| Minor Lane/Major Mvmt    | NBLn1  | EBT  | EBR    | WBL   | WBT    |      |
| Capacity (veh/h)         | 487    | -    | -      | 1255  | -      |      |
| HCM Lane V/C Ratio       | 0.013  | -    | -      | 0.001 | -      |      |
| HCM Control Delay (s)    | 12.5   | -    | -      | 7.9   | -      |      |
| HCM Lane LOS             | B      | -    | -      | A     | -      |      |
| HCM 95th %tile Q(veh)    | 0      | -    | -      | 0     | -      |      |

HCM 6th TWSC  
300: Salem Lane & Milham Avenue

Existing (2023) Traffic Volumes  
PM Peak Hour

| Intersection             |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh         | 0    |      |      |      |      |      |
| Movement                 | EBT  | EBR  | WBL  | WBT  | NBL  | NBR  |
| Lane Configurations      | ↑↑   |      | ↑    | ↑↑   | ↑    |      |
| Traffic Vol, veh/h       | 280  | 1    | 1    | 510  | 2    | 1    |
| Future Vol, veh/h        | 280  | 1    | 1    | 510  | 2    | 1    |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Stop | Stop |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | -    | -    | 25   | -    | 0    | -    |
| Veh in Median Storage, # | 0    | -    | -    | 0    | 0    | -    |
| Grade, %                 | 0    | -    | -    | 0    | 0    | -    |
| Peak Hour Factor         | 93   | 93   | 93   | 93   | 93   | 93   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 301  | 1    | 1    | 548  | 2    | 1    |

| Major/Minor          | Major1 | Major2 | Minor1 |   |      |
|----------------------|--------|--------|--------|---|------|
| Conflicting Flow All | 0      | 0      | 302    | 0 | 578  |
| Stage 1              | -      | -      | -      | - | 302  |
| Stage 2              | -      | -      | -      | - | 276  |
| Critical Hdwy        | -      | -      | 4.14   | - | 6.84 |
| Critical Hdwy Stg 1  | -      | -      | -      | - | 5.84 |
| Critical Hdwy Stg 2  | -      | -      | -      | - | 5.84 |
| Follow-up Hdwy       | -      | -      | 2.22   | - | 3.52 |
| Pot Cap-1 Maneuver   | -      | -      | 1256   | - | 446  |
| Stage 1              | -      | -      | -      | - | 724  |
| Stage 2              | -      | -      | -      | - | 746  |
| Platoon blocked, %   | -      | -      | -      | - | -    |
| Mov Cap-1 Maneuver   | -      | -      | 1256   | - | 446  |
| Mov Cap-2 Maneuver   | -      | -      | -      | - | 539  |
| Stage 1              | -      | -      | -      | - | 724  |
| Stage 2              | -      | -      | -      | - | 745  |

| Approach             | EB | WB | NB   |
|----------------------|----|----|------|
| HCM Control Delay, s | 0  | 0  | 10.9 |
| HCM LOS              |    |    | B    |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL   | WBT |
|-----------------------|-------|-----|-----|-------|-----|
| Capacity (veh/h)      | 617   | -   | -   | 1256  | -   |
| HCM Lane V/C Ratio    | 0.005 | -   | -   | 0.001 | -   |
| HCM Control Delay (s) | 10.9  | -   | -   | 7.9   | -   |
| HCM Lane LOS          | B     | -   | -   | A     | -   |
| HCM 95th %tile Q(veh) | 0     | -   | -   | 0     | -   |

# HCM 6th Signalized Intersection Summary

## 100: Westnedge Avenue & Milham Avenue

Existing (2023) Traffic Volumes  
Saturday Peak Hour

|                              |                                                                                    |                                                                                    |  |                                                                                    |                                                                                    |  |  |                                                                                      |  |  |                                                                                                                                                                          |  |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                                                                                                                 | EBT                                                                                                                                                                 | EBR                                                                               | WBL                                                                                                                                                                 | WBT                                                                                                                                                                 | WBR                                                                               | NBL                                                                                | NBT                                                                                                                                                                     | NBR                                                                                 | SBL                                                                                 | SBT                                                                                                                                                                                                                                                         | SBR                                                                                 |
| Lane Configurations          |   |   |  |   |   |  |  |   |  |  |    |  |
| Traffic Volume (veh/h)       | 280                                                                                                                                                                 | 235                                                                                                                                                                 | 155                                                                               | 145                                                                                                                                                                 | 340                                                                                                                                                                 | 350                                                                               | 135                                                                                | 1170                                                                                                                                                                    | 80                                                                                  | 140                                                                                 | 1370                                                                                                                                                                                                                                                        | 255                                                                                 |
| Future Volume (veh/h)        | 280                                                                                                                                                                 | 235                                                                                                                                                                 | 155                                                                               | 145                                                                                                                                                                 | 340                                                                                                                                                                 | 350                                                                               | 135                                                                                | 1170                                                                                                                                                                    | 80                                                                                  | 140                                                                                 | 1370                                                                                                                                                                                                                                                        | 255                                                                                 |
| Initial Q (Qb), veh          | 0                                                                                                                                                                   | 0                                                                                                                                                                   | 0                                                                                 | 0                                                                                                                                                                   | 0                                                                                                                                                                   | 0                                                                                 | 0                                                                                  | 0                                                                                                                                                                       | 0                                                                                   | 0                                                                                   | 0                                                                                                                                                                                                                                                           | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                                                                                                                |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                                                                                                                |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                               |                                                                                                                                                                         | 1.00                                                                                | 1.00                                                                                |                                                                                                                                                                                                                                                             | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                                                                                                                | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                                                                                                        | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                                                                                                  |                                                                                                                                                                     |                                                                                   | No                                                                                                                                                                  |                                                                                                                                                                     |                                                                                   | No                                                                                 |                                                                                                                                                                         |                                                                                     | No                                                                                  |                                                                                                                                                                                                                                                             |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                                                                                                                | 1870                                                                                                                                                                | 1870                                                                              | 1870                                                                                                                                                                | 1870                                                                                                                                                                | 1870                                                                              | 1870                                                                               | 1870                                                                                                                                                                    | 1870                                                                                | 1870                                                                                | 1870                                                                                                                                                                                                                                                        | 1870                                                                                |
| Adj Flow Rate, veh/h         | 295                                                                                                                                                                 | 247                                                                                                                                                                 | 163                                                                               | 153                                                                                                                                                                 | 358                                                                                                                                                                 | 368                                                                               | 142                                                                                | 1232                                                                                                                                                                    | 84                                                                                  | 147                                                                                 | 1442                                                                                                                                                                                                                                                        | 268                                                                                 |
| Peak Hour Factor             | 0.95                                                                                                                                                                | 0.95                                                                                                                                                                | 0.95                                                                              | 0.95                                                                                                                                                                | 0.95                                                                                                                                                                | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                                                                                                    | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                                                                                                                                                                                        | 0.95                                                                                |
| Percent Heavy Veh, %         | 2                                                                                                                                                                   | 2                                                                                                                                                                   | 2                                                                                 | 2                                                                                                                                                                   | 2                                                                                                                                                                   | 2                                                                                 | 2                                                                                  | 2                                                                                                                                                                       | 2                                                                                   | 2                                                                                   | 2                                                                                                                                                                                                                                                           | 2                                                                                   |
| Cap, veh/h                   | 352                                                                                                                                                                 | 747                                                                                                                                                                 | 482                                                                               | 205                                                                                                                                                                 | 597                                                                                                                                                                 | 420                                                                               | 167                                                                                | 1795                                                                                                                                                                    | 894                                                                                 | 173                                                                                 | 2594                                                                                                                                                                                                                                                        | 967                                                                                 |
| Arrive On Green              | 0.10                                                                                                                                                                | 0.21                                                                                                                                                                | 0.21                                                                              | 0.06                                                                                                                                                                | 0.17                                                                                                                                                                | 0.17                                                                              | 0.09                                                                               | 0.50                                                                                                                                                                    | 0.50                                                                                | 0.10                                                                                | 0.51                                                                                                                                                                                                                                                        | 0.51                                                                                |
| Sat Flow, veh/h              | 3456                                                                                                                                                                | 3554                                                                                                                                                                | 1585                                                                              | 3456                                                                                                                                                                | 3554                                                                                                                                                                | 1585                                                                              | 1781                                                                               | 3554                                                                                                                                                                    | 1585                                                                                | 1781                                                                                | 5106                                                                                                                                                                                                                                                        | 1585                                                                                |
| Grp Volume(v), veh/h         | 295                                                                                                                                                                 | 247                                                                                                                                                                 | 163                                                                               | 153                                                                                                                                                                 | 358                                                                                                                                                                 | 368                                                                               | 142                                                                                | 1232                                                                                                                                                                    | 84                                                                                  | 147                                                                                 | 1442                                                                                                                                                                                                                                                        | 268                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1728                                                                                                                                                                | 1777                                                                                                                                                                | 1585                                                                              | 1728                                                                                                                                                                | 1777                                                                                                                                                                | 1585                                                                              | 1781                                                                               | 1777                                                                                                                                                                    | 1585                                                                                | 1781                                                                                | 1702                                                                                                                                                                                                                                                        | 1585                                                                                |
| Q Serve(g_s), s              | 11.7                                                                                                                                                                | 8.3                                                                                                                                                                 | 11.2                                                                              | 6.1                                                                                                                                                                 | 13.1                                                                                                                                                                | 23.5                                                                              | 11.0                                                                               | 36.8                                                                                                                                                                    | 3.4                                                                                 | 11.4                                                                                | 27.1                                                                                                                                                                                                                                                        | 11.1                                                                                |
| Cycle Q Clear(g_c), s        | 11.7                                                                                                                                                                | 8.3                                                                                                                                                                 | 11.2                                                                              | 6.1                                                                                                                                                                 | 13.1                                                                                                                                                                | 23.5                                                                              | 11.0                                                                               | 36.8                                                                                                                                                                    | 3.4                                                                                 | 11.4                                                                                | 27.1                                                                                                                                                                                                                                                        | 11.1                                                                                |
| Prop In Lane                 | 1.00                                                                                                                                                                |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                                                                                                                |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                               |                                                                                                                                                                         | 1.00                                                                                | 1.00                                                                                |                                                                                                                                                                                                                                                             | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 352                                                                                                                                                                 | 747                                                                                                                                                                 | 482                                                                               | 205                                                                                                                                                                 | 597                                                                                                                                                                 | 420                                                                               | 167                                                                                | 1795                                                                                                                                                                    | 894                                                                                 | 173                                                                                 | 2594                                                                                                                                                                                                                                                        | 967                                                                                 |
| V/C Ratio(X)                 | 0.84                                                                                                                                                                | 0.33                                                                                                                                                                | 0.34                                                                              | 0.75                                                                                                                                                                | 0.60                                                                                                                                                                | 0.88                                                                              | 0.85                                                                               | 0.69                                                                                                                                                                    | 0.09                                                                                | 0.85                                                                                | 0.56                                                                                                                                                                                                                                                        | 0.28                                                                                |
| Avail Cap(c_a), veh/h        | 481                                                                                                                                                                 | 747                                                                                                                                                                 | 482                                                                               | 358                                                                                                                                                                 | 597                                                                                                                                                                 | 420                                                                               | 261                                                                                | 1795                                                                                                                                                                    | 894                                                                                 | 286                                                                                 | 2594                                                                                                                                                                                                                                                        | 967                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                                                                                                                | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                                                                                                        | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                                                                                                                | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                                                                                                        | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 61.8                                                                                                                                                                | 46.9                                                                                                                                                                | 37.8                                                                              | 64.8                                                                                                                                                                | 53.9                                                                                                                                                                | 49.3                                                                              | 62.5                                                                               | 26.3                                                                                                                                                                    | 14.0                                                                                | 62.2                                                                                | 23.6                                                                                                                                                                                                                                                        | 12.8                                                                                |
| Incr Delay (d2), s/veh       | 9.3                                                                                                                                                                 | 0.3                                                                                                                                                                 | 0.4                                                                               | 5.3                                                                                                                                                                 | 1.7                                                                                                                                                                 | 18.5                                                                              | 14.4                                                                               | 2.2                                                                                                                                                                     | 0.2                                                                                 | 12.1                                                                                | 0.9                                                                                                                                                                                                                                                         | 0.7                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                                                                                                                 | 0.0                                                                                                                                                                 | 0.0                                                                               | 0.0                                                                                                                                                                 | 0.0                                                                                                                                                                 | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                                                                                                     | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                                                                                                                                                                                         | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 5.6                                                                                                                                                                 | 3.7                                                                                                                                                                 | 4.4                                                                               | 2.8                                                                                                                                                                 | 6.0                                                                                                                                                                 | 14.4                                                                              | 5.6                                                                                | 15.8                                                                                                                                                                    | 1.3                                                                                 | 5.7                                                                                 | 10.9                                                                                                                                                                                                                                                        | 4.1                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                                                                                                     |                                                                                                                                                                     |                                                                                   |                                                                                                                                                                     |                                                                                                                                                                     |                                                                                   |                                                                                    |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                                                                                                             |                                                                                     |
| LnGrp Delay(d),s/veh         | 71.1                                                                                                                                                                | 47.2                                                                                                                                                                | 38.2                                                                              | 70.2                                                                                                                                                                | 55.6                                                                                                                                                                | 67.8                                                                              | 76.8                                                                               | 28.4                                                                                                                                                                    | 14.2                                                                                | 74.3                                                                                | 24.5                                                                                                                                                                                                                                                        | 13.5                                                                                |
| LnGrp LOS                    | E                                                                                                                                                                   | D                                                                                                                                                                   | D                                                                                 | E                                                                                                                                                                   | E                                                                                                                                                                   | E                                                                                 | E                                                                                  | C                                                                                                                                                                       | B                                                                                   | E                                                                                   | C                                                                                                                                                                                                                                                           | B                                                                                   |
| Approach Vol, veh/h          | 705                                                                                                                                                                 |                                                                                                                                                                     |                                                                                   | 879                                                                                                                                                                 |                                                                                                                                                                     |                                                                                   | 1458                                                                               |                                                                                                                                                                         |                                                                                     | 1857                                                                                |                                                                                                                                                                                                                                                             |                                                                                     |
| Approach Delay, s/veh        | 55.1                                                                                                                                                                |                                                                                                                                                                     |                                                                                   | 63.2                                                                                                                                                                |                                                                                                                                                                     |                                                                                   | 32.3                                                                               |                                                                                                                                                                         |                                                                                     | 26.8                                                                                |                                                                                                                                                                                                                                                             |                                                                                     |
| Approach LOS                 | E                                                                                                                                                                   |                                                                                                                                                                     |                                                                                   | E                                                                                                                                                                   |                                                                                                                                                                     |                                                                                   | C                                                                                  |                                                                                                                                                                         |                                                                                     | C                                                                                   |                                                                                                                                                                                                                                                             |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                                                                                                   | 2                                                                                                                                                                   | 3                                                                                 | 4                                                                                                                                                                   | 5                                                                                                                                                                   | 6                                                                                 | 7                                                                                  | 8                                                                                                                                                                       |                                                                                     |                                                                                     |                                                                                                                                                                                                                                                             |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 18.1                                                                                                                                                                | 75.2                                                                                                                                                                | 12.8                                                                              | 33.9                                                                                                                                                                | 17.6                                                                                                                                                                | 75.6                                                                              | 18.7                                                                               | 28.0                                                                                                                                                                    |                                                                                     |                                                                                     |                                                                                                                                                                                                                                                             |                                                                                     |
| Change Period (Y+Rc), s      | 4.5                                                                                                                                                                 | 4.5                                                                                                                                                                 | 4.5                                                                               | 4.5                                                                                                                                                                 | 4.5                                                                                                                                                                 | 4.5                                                                               | 4.5                                                                                | 4.5                                                                                                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                                                                                                             |                                                                                     |
| Max Green Setting (Gmax), s  | 22.5                                                                                                                                                                | 56.5                                                                                                                                                                | 14.5                                                                              | 28.5                                                                                                                                                                | 20.5                                                                                                                                                                | 58.5                                                                              | 19.5                                                                               | 23.5                                                                                                                                                                    |                                                                                     |                                                                                     |                                                                                                                                                                                                                                                             |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 13.4                                                                                                                                                                | 38.8                                                                                                                                                                | 8.1                                                                               | 13.2                                                                                                                                                                | 13.0                                                                                                                                                                | 29.1                                                                              | 13.7                                                                               | 25.5                                                                                                                                                                    |                                                                                     |                                                                                     |                                                                                                                                                                                                                                                             |                                                                                     |
| Green Ext Time (p_c), s      | 0.2                                                                                                                                                                 | 8.7                                                                                                                                                                 | 0.2                                                                               | 1.8                                                                                                                                                                 | 0.2                                                                                                                                                                 | 14.0                                                                              | 0.5                                                                                | 0.0                                                                                                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                                                                                                             |                                                                                     |
| Intersection Summary         |                                                                                                                                                                     |                                                                                                                                                                     |                                                                                   |                                                                                                                                                                     |                                                                                                                                                                     |                                                                                   |                                                                                    |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                                                                                                             |                                                                                     |
| HCM 6th Ctrl Delay           | 39.1                                                                                                                                                                |                                                                                                                                                                     |                                                                                   |                                                                                                                                                                     |                                                                                                                                                                     |                                                                                   |                                                                                    |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                                                                                                             |                                                                                     |
| HCM 6th LOS                  | D                                                                                                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                                                                                                     |                                                                                                                                                                     |                                                                                   |                                                                                    |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                                                                                                             |                                                                                     |



HCM 6th TWSC  
200: Chelsea Lane & Milham Avenue

Existing (2023) Traffic Volumes  
Saturday Peak Hour

| Intersection             |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh         | 0.2  |      |      |      |      |      |
| Movement                 | EBT  | EBR  | WBL  | WBT  | NBL  | NBR  |
| Lane Configurations      | ↑↑   |      | ↑    | ↑↑   | ↑    |      |
| Traffic Vol, veh/h       | 450  | 5    | 5    | 830  | 5    | 5    |
| Future Vol, veh/h        | 450  | 5    | 5    | 830  | 5    | 5    |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Stop | Stop |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | -    | -    | 25   | -    | 0    | -    |
| Veh in Median Storage, # | 0    | -    | -    | 0    | 0    | -    |
| Grade, %                 | 0    | -    | -    | 0    | 0    | -    |
| Peak Hour Factor         | 92   | 92   | 92   | 92   | 92   | 92   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 489  | 5    | 5    | 902  | 5    | 5    |

| Major/Minor          | Major1 | Major2 | Minor1 |   |      |
|----------------------|--------|--------|--------|---|------|
| Conflicting Flow All | 0      | 0      | 494    | 0 | 953  |
| Stage 1              | -      | -      | -      | - | 492  |
| Stage 2              | -      | -      | -      | - | 461  |
| Critical Hdwy        | -      | -      | 4.14   | - | 6.84 |
| Critical Hdwy Stg 1  | -      | -      | -      | - | 5.84 |
| Critical Hdwy Stg 2  | -      | -      | -      | - | 5.84 |
| Follow-up Hdwy       | -      | -      | 2.22   | - | 3.52 |
| Pot Cap-1 Maneuver   | -      | -      | 1066   | - | 257  |
| Stage 1              | -      | -      | -      | - | 580  |
| Stage 2              | -      | -      | -      | - | 601  |
| Platoon blocked, %   | -      | -      | -      | - | -    |
| Mov Cap-1 Maneuver   | -      | -      | 1066   | - | 256  |
| Mov Cap-2 Maneuver   | -      | -      | -      | - | 256  |
| Stage 1              | -      | -      | -      | - | 580  |
| Stage 2              | -      | -      | -      | - | 598  |

| Approach             | EB | WB  | NB   |
|----------------------|----|-----|------|
| HCM Control Delay, s | 0  | 0.1 | 14.7 |
| HCM LOS              |    |     | B    |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL   | WBT |
|-----------------------|-------|-----|-----|-------|-----|
| Capacity (veh/h)      | 382   | -   | -   | 1066  | -   |
| HCM Lane V/C Ratio    | 0.028 | -   | -   | 0.005 | -   |
| HCM Control Delay (s) | 14.7  | -   | -   | 8.4   | -   |
| HCM Lane LOS          | B     | -   | -   | A     | -   |
| HCM 95th %tile Q(veh) | 0.1   | -   | -   | 0     | -   |

HCM 6th TWSC  
300: Salem Lane & Milham Avenue

Existing (2023) Traffic Volumes  
Saturday Peak Hour

| Intersection             |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh         | 0.1  |      |      |      |      |      |
| Movement                 | EBT  | EBR  | WBL  | WBT  | NBL  | NBR  |
| Lane Configurations      | ↑↑   |      | ↵    | ↑↑   | ↵    |      |
| Traffic Vol, veh/h       | 450  | 5    | 5    | 830  | 5    | 2    |
| Future Vol, veh/h        | 450  | 5    | 5    | 830  | 5    | 2    |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Stop | Stop |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | -    | -    | 25   | -    | 0    | -    |
| Veh in Median Storage, # | 0    | -    | -    | 0    | 0    | -    |
| Grade, %                 | 0    | -    | -    | 0    | 0    | -    |
| Peak Hour Factor         | 91   | 91   | 91   | 91   | 91   | 91   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 495  | 5    | 5    | 912  | 5    | 2    |

| Major/Minor          | Major1 | Major2 | Minor1 |   |      |
|----------------------|--------|--------|--------|---|------|
| Conflicting Flow All | 0      | 0      | 500    | 0 | 964  |
| Stage 1              | -      | -      | -      | - | 498  |
| Stage 2              | -      | -      | -      | - | 466  |
| Critical Hdwy        | -      | -      | 4.14   | - | 6.84 |
| Critical Hdwy Stg 1  | -      | -      | -      | - | 5.84 |
| Critical Hdwy Stg 2  | -      | -      | -      | - | 5.84 |
| Follow-up Hdwy       | -      | -      | 2.22   | - | 3.52 |
| Pot Cap-1 Maneuver   | -      | -      | 1060   | - | 253  |
| Stage 1              | -      | -      | -      | - | 576  |
| Stage 2              | -      | -      | -      | - | 598  |
| Platoon blocked, %   | -      | -      | -      | - | -    |
| Mov Cap-1 Maneuver   | -      | -      | 1060   | - | 252  |
| Mov Cap-2 Maneuver   | -      | -      | -      | - | 382  |
| Stage 1              | -      | -      | -      | - | 576  |
| Stage 2              | -      | -      | -      | - | 595  |

| Approach             | EB | WB  | NB   |
|----------------------|----|-----|------|
| HCM Control Delay, s | 0  | 0.1 | 13.3 |
| HCM LOS              |    |     | B    |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL   | WBT |
|-----------------------|-------|-----|-----|-------|-----|
| Capacity (veh/h)      | 444   | -   | -   | 1060  | -   |
| HCM Lane V/C Ratio    | 0.017 | -   | -   | 0.005 | -   |
| HCM Control Delay (s) | 13.3  | -   | -   | 8.4   | -   |
| HCM Lane LOS          | B     | -   | -   | A     | -   |
| HCM 95th %tile Q(veh) | 0.1   | -   | -   | 0     | -   |

# HCM 6th Signalized Intersection Summary

## 100: Westnedge Avenue & Milham Avenue

# Build (2023) Traffic Projections

PM Peak Hour

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |  |   |  |  |  |  |  |
| Traffic Volume (veh/h)       | 265                                                                               | 140                                                                               | 190                                                                               | 210                                                                               | 190                                                                               | 155                                                                               | 140                                                                                 | 1180                                                                                | 75                                                                                  | 105                                                                                 | 1305                                                                                | 205                                                                                 |
| Future Volume (veh/h)        | 265                                                                               | 140                                                                               | 190                                                                               | 210                                                                               | 190                                                                               | 155                                                                               | 140                                                                                 | 1180                                                                                | 75                                                                                  | 105                                                                                 | 1305                                                                                | 205                                                                                 |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 273                                                                               | 144                                                                               | 196                                                                               | 216                                                                               | 196                                                                               | 160                                                                               | 144                                                                                 | 1216                                                                                | 77                                                                                  | 108                                                                                 | 1345                                                                                | 211                                                                                 |
| Peak Hour Factor             | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 330                                                                               | 467                                                                               | 359                                                                               | 268                                                                               | 403                                                                               | 298                                                                               | 169                                                                                 | 2090                                                                                | 1055                                                                                | 132                                                                                 | 2898                                                                                | 1051                                                                                |
| Arrive On Green              | 0.10                                                                              | 0.13                                                                              | 0.13                                                                              | 0.08                                                                              | 0.11                                                                              | 0.11                                                                              | 0.09                                                                                | 0.59                                                                                | 0.59                                                                                | 0.07                                                                                | 0.57                                                                                | 0.57                                                                                |
| Sat Flow, veh/h              | 3456                                                                              | 3554                                                                              | 1585                                                                              | 3456                                                                              | 3554                                                                              | 1585                                                                              | 1781                                                                                | 3554                                                                                | 1585                                                                                | 1781                                                                                | 5106                                                                                | 1585                                                                                |
| Grp Volume(v), veh/h         | 273                                                                               | 144                                                                               | 196                                                                               | 216                                                                               | 196                                                                               | 160                                                                               | 144                                                                                 | 1216                                                                                | 77                                                                                  | 108                                                                                 | 1345                                                                                | 211                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1728                                                                              | 1777                                                                              | 1585                                                                              | 1728                                                                              | 1777                                                                              | 1585                                                                              | 1781                                                                                | 1777                                                                                | 1585                                                                                | 1781                                                                                | 1702                                                                                | 1585                                                                                |
| Q Serve(g_s), s              | 10.9                                                                              | 5.1                                                                               | 15.3                                                                              | 8.6                                                                               | 7.2                                                                               | 12.8                                                                              | 11.1                                                                                | 30.0                                                                                | 2.4                                                                                 | 8.4                                                                                 | 21.7                                                                                | 7.2                                                                                 |
| Cycle Q Clear(g_c), s        | 10.9                                                                              | 5.1                                                                               | 15.3                                                                              | 8.6                                                                               | 7.2                                                                               | 12.8                                                                              | 11.1                                                                                | 30.0                                                                                | 2.4                                                                                 | 8.4                                                                                 | 21.7                                                                                | 7.2                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 330                                                                               | 467                                                                               | 359                                                                               | 268                                                                               | 403                                                                               | 298                                                                               | 169                                                                                 | 2090                                                                                | 1055                                                                                | 132                                                                                 | 2898                                                                                | 1051                                                                                |
| V/C Ratio(X)                 | 0.83                                                                              | 0.31                                                                              | 0.55                                                                              | 0.81                                                                              | 0.49                                                                              | 0.54                                                                              | 0.85                                                                                | 0.58                                                                                | 0.07                                                                                | 0.82                                                                                | 0.46                                                                                | 0.20                                                                                |
| Avail Cap(c_a), veh/h        | 481                                                                               | 723                                                                               | 473                                                                               | 358                                                                               | 597                                                                               | 384                                                                               | 261                                                                                 | 2090                                                                                | 1055                                                                                | 286                                                                                 | 2898                                                                                | 1051                                                                                |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 62.2                                                                              | 55.0                                                                              | 47.8                                                                              | 63.5                                                                              | 58.2                                                                              | 51.4                                                                              | 62.4                                                                                | 18.0                                                                                | 8.2                                                                                 | 63.9                                                                                | 17.8                                                                                | 9.2                                                                                 |
| Incr Delay (d2), s/veh       | 7.7                                                                               | 0.4                                                                               | 1.3                                                                               | 9.5                                                                               | 0.9                                                                               | 1.5                                                                               | 14.9                                                                                | 1.2                                                                                 | 0.1                                                                                 | 11.5                                                                                | 0.5                                                                                 | 0.4                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 5.1                                                                               | 2.3                                                                               | 6.2                                                                               | 4.1                                                                               | 3.3                                                                               | 5.2                                                                               | 5.7                                                                                 | 12.3                                                                                | 0.8                                                                                 | 4.2                                                                                 | 8.5                                                                                 | 2.6                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d),s/veh         | 69.8                                                                              | 55.4                                                                              | 49.1                                                                              | 73.1                                                                              | 59.1                                                                              | 52.9                                                                              | 77.3                                                                                | 19.2                                                                                | 8.4                                                                                 | 75.4                                                                                | 18.3                                                                                | 9.6                                                                                 |
| LnGrp LOS                    | E                                                                                 | E                                                                                 | D                                                                                 | E                                                                                 | E                                                                                 | D                                                                                 | E                                                                                   | B                                                                                   | A                                                                                   | E                                                                                   | B                                                                                   | A                                                                                   |
| Approach Vol, veh/h          | 613                                                                               |                                                                                   |                                                                                   | 572                                                                               |                                                                                   |                                                                                   | 1437                                                                                |                                                                                     |                                                                                     | 1664                                                                                |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 59.8                                                                              |                                                                                   |                                                                                   | 62.6                                                                              |                                                                                   |                                                                                   | 24.5                                                                                |                                                                                     |                                                                                     | 20.9                                                                                |                                                                                     |                                                                                     |
| Approach LOS                 | E                                                                                 |                                                                                   |                                                                                   | E                                                                                 |                                                                                   |                                                                                   | C                                                                                   |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 14.9                                                                              | 86.9                                                                              | 15.4                                                                              | 22.9                                                                              | 17.8                                                                              | 84.0                                                                              | 17.9                                                                                | 20.4                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                                 | 4.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 22.5                                                                              | 56.5                                                                              | 14.5                                                                              | 28.5                                                                              | 20.5                                                                              | 58.5                                                                              | 19.5                                                                                | 23.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 10.4                                                                              | 32.0                                                                              | 10.6                                                                              | 17.3                                                                              | 13.1                                                                              | 23.7                                                                              | 12.9                                                                                | 14.8                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.2                                                                               | 10.1                                                                              | 0.2                                                                               | 1.1                                                                               | 0.2                                                                               | 13.5                                                                              | 0.5                                                                                 | 1.1                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th Ctrl Delay           | 33.2                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th LOS                  | C                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

| Intersection             |        |          |        |      |      |      |
|--------------------------|--------|----------|--------|------|------|------|
| Int Delay, s/veh         | 0.2    |          |        |      |      |      |
| Movement                 | WBL    | WBR      | NBT    | NBR  | SBL  | SBT  |
| Lane Configurations      |        | ↗        | ↕      |      |      | ↕    |
| Traffic Vol, veh/h       | 0      | 30       | 1365   | 35   | 0    | 1705 |
| Future Vol, veh/h        | 0      | 30       | 1365   | 35   | 0    | 1705 |
| Conflicting Peds, #/hr   | 0      | 0        | 0      | 0    | 0    | 0    |
| Sign Control             | Stop   | Stop     | Free   | Free | Free | Free |
| RT Channelized           | -      | None     | -      | None | -    | None |
| Storage Length           | -      | 0        | -      | -    | -    | -    |
| Veh in Median Storage, # | 0      | -        | 0      | -    | -    | 0    |
| Grade, %                 | 0      | -        | 0      | -    | -    | 0    |
| Peak Hour Factor         | 92     | 92       | 92     | 92   | 92   | 92   |
| Heavy Vehicles, %        | 2      | 2        | 2      | 2    | 2    | 2    |
| Mvmt Flow                | 0      | 33       | 1484   | 38   | 0    | 1853 |
| Major/Minor              | Minor1 | Major1   | Major2 |      |      |      |
| Conflicting Flow All     | -      | 761      | 0      | 0    | -    | -    |
| Stage 1                  | -      | -        | -      | -    | -    | -    |
| Stage 2                  | -      | -        | -      | -    | -    | -    |
| Critical Hdwy            | -      | 6.94     | -      | -    | -    | -    |
| Critical Hdwy Stg 1      | -      | -        | -      | -    | -    | -    |
| Critical Hdwy Stg 2      | -      | -        | -      | -    | -    | -    |
| Follow-up Hdwy           | -      | 3.32     | -      | -    | -    | -    |
| Pot Cap-1 Maneuver       | 0      | 348      | -      | -    | 0    | -    |
| Stage 1                  | 0      | -        | -      | -    | 0    | -    |
| Stage 2                  | 0      | -        | -      | -    | 0    | -    |
| Platoon blocked, %       |        |          | -      | -    |      | -    |
| Mov Cap-1 Maneuver       | -      | 348      | -      | -    | -    | -    |
| Mov Cap-2 Maneuver       | -      | -        | -      | -    | -    | -    |
| Stage 1                  | -      | -        | -      | -    | -    | -    |
| Stage 2                  | -      | -        | -      | -    | -    | -    |
| Approach                 | WB     | NB       | SB     |      |      |      |
| HCM Control Delay, s     | 16.4   | 0        | 0      |      |      |      |
| HCM LOS                  | C      |          |        |      |      |      |
| Minor Lane/Major Mvmt    | NBT    | NBRWBLn1 | SBT    |      |      |      |
| Capacity (veh/h)         | -      | -        | 348    | -    |      |      |
| HCM Lane V/C Ratio       | -      | -        | 0.094  | -    |      |      |
| HCM Control Delay (s)    | -      | -        | 16.4   | -    |      |      |
| HCM Lane LOS             | -      | -        | C      | -    |      |      |
| HCM 95th %tile Q(veh)    | -      | -        | 0.3    | -    |      |      |

| Intersection             |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh         | 1    |      |      |      |      |      |
| Movement                 | EBT  | EBR  | WBL  | WBT  | NBL  | NBR  |
| Lane Configurations      | ↑↑   |      | ↑    | ↑↑   | ↑    |      |
| Traffic Vol, veh/h       | 280  | 40   | 10   | 510  | 45   | 10   |
| Future Vol, veh/h        | 280  | 40   | 10   | 510  | 45   | 10   |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Stop | Stop |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | -    | -    | 25   | -    | 0    | -    |
| Veh in Median Storage, # | 0    | -    | -    | 0    | 0    | -    |
| Grade, %                 | 0    | -    | -    | 0    | 0    | -    |
| Peak Hour Factor         | 92   | 92   | 92   | 92   | 92   | 92   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 304  | 43   | 11   | 554  | 49   | 11   |

| Major/Minor          | Major1 | Major2 | Minor1 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 0      | 0      | 347    |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Critical Hdwy        | -      | -      | 4.14   |
| Critical Hdwy Stg 1  | -      | -      | -      |
| Critical Hdwy Stg 2  | -      | -      | -      |
| Follow-up Hdwy       | -      | -      | 2.22   |
| Pot Cap-1 Maneuver   | -      | -      | 1209   |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Platoon blocked, %   | -      | -      | -      |
| Mov Cap-1 Maneuver   | -      | -      | 1209   |
| Mov Cap-2 Maneuver   | -      | -      | -      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |

| Approach             | EB | WB  | NB   |
|----------------------|----|-----|------|
| HCM Control Delay, s | 0  | 0.2 | 14.1 |
| HCM LOS              |    |     | B    |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL   | WBT |
|-----------------------|-------|-----|-----|-------|-----|
| Capacity (veh/h)      | 455   | -   | -   | 1209  | -   |
| HCM Lane V/C Ratio    | 0.131 | -   | -   | 0.009 | -   |
| HCM Control Delay (s) | 14.1  | -   | -   | 8     | -   |
| HCM Lane LOS          | B     | -   | -   | A     | -   |
| HCM 95th %tile Q(veh) | 0.5   | -   | -   | 0     | -   |



| Intersection             |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh         | 0.1  |      |      |      |      |      |
| Movement                 | EBT  | EBR  | WBL  | WBT  | NBL  | NBR  |
| Lane Configurations      | ↑↑   |      | ↑    | ↑↑   | ↑    |      |
| Traffic Vol, veh/h       | 285  | 5    | 1    | 515  | 5    | 1    |
| Future Vol, veh/h        | 285  | 5    | 1    | 515  | 5    | 1    |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Stop | Stop |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | -    | -    | 25   | -    | 0    | -    |
| Veh in Median Storage, # | 0    | -    | -    | 0    | 0    | -    |
| Grade, %                 | 0    | -    | -    | 0    | 0    | -    |
| Peak Hour Factor         | 94   | 94   | 94   | 94   | 94   | 94   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 303  | 5    | 1    | 548  | 5    | 1    |

| Major/Minor          | Major1 | Major2 | Minor1 |   |      |
|----------------------|--------|--------|--------|---|------|
| Conflicting Flow All | 0      | 0      | 308    | 0 | 582  |
| Stage 1              | -      | -      | -      | - | 306  |
| Stage 2              | -      | -      | -      | - | 276  |
| Critical Hdwy        | -      | -      | 4.14   | - | 6.84 |
| Critical Hdwy Stg 1  | -      | -      | -      | - | 5.84 |
| Critical Hdwy Stg 2  | -      | -      | -      | - | 5.84 |
| Follow-up Hdwy       | -      | -      | 2.22   | - | 3.52 |
| Pot Cap-1 Maneuver   | -      | -      | 1249   | - | 444  |
| Stage 1              | -      | -      | -      | - | 720  |
| Stage 2              | -      | -      | -      | - | 746  |
| Platoon blocked, %   | -      | -      | -      | - | -    |
| Mov Cap-1 Maneuver   | -      | -      | 1249   | - | 444  |
| Mov Cap-2 Maneuver   | -      | -      | -      | - | 537  |
| Stage 1              | -      | -      | -      | - | 720  |
| Stage 2              | -      | -      | -      | - | 745  |

| Approach             | EB | WB | NB   |
|----------------------|----|----|------|
| HCM Control Delay, s | 0  | 0  | 11.4 |
| HCM LOS              |    |    | B    |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL   | WBT |
|-----------------------|-------|-----|-----|-------|-----|
| Capacity (veh/h)      | 573   | -   | -   | 1249  | -   |
| HCM Lane V/C Ratio    | 0.011 | -   | -   | 0.001 | -   |
| HCM Control Delay (s) | 11.4  | -   | -   | 7.9   | -   |
| HCM Lane LOS          | B     | -   | -   | A     | -   |
| HCM 95th %tile Q(veh) | 0     | -   | -   | 0     | -   |

| Intersection             |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh         | 0    |      |      |      |      |      |
| Movement                 | EBT  | EBR  | WBL  | WBT  | NBL  | NBR  |
| Lane Configurations      | ↑↑   |      | ↑    | ↑↑   | ↑    |      |
| Traffic Vol, veh/h       | 285  | 1    | 1    | 515  | 2    | 1    |
| Future Vol, veh/h        | 285  | 1    | 1    | 515  | 2    | 1    |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Stop | Stop |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | -    | -    | 25   | -    | 0    | -    |
| Veh in Median Storage, # | 0    | -    | -    | 0    | 0    | -    |
| Grade, %                 | 0    | -    | -    | 0    | 0    | -    |
| Peak Hour Factor         | 93   | 93   | 93   | 93   | 93   | 93   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 306  | 1    | 1    | 554  | 2    | 1    |

| Major/Minor          | Major1 | Major2 | Minor1 |   |      |      |
|----------------------|--------|--------|--------|---|------|------|
| Conflicting Flow All | 0      | 0      | 307    | 0 | 586  | 154  |
| Stage 1              | -      | -      | -      | - | 307  | -    |
| Stage 2              | -      | -      | -      | - | 279  | -    |
| Critical Hdwy        | -      | -      | 4.14   | - | 6.84 | 6.94 |
| Critical Hdwy Stg 1  | -      | -      | -      | - | 5.84 | -    |
| Critical Hdwy Stg 2  | -      | -      | -      | - | 5.84 | -    |
| Follow-up Hdwy       | -      | -      | 2.22   | - | 3.52 | 3.32 |
| Pot Cap-1 Maneuver   | -      | -      | 1250   | - | 441  | 864  |
| Stage 1              | -      | -      | -      | - | 719  | -    |
| Stage 2              | -      | -      | -      | - | 743  | -    |
| Platoon blocked, %   | -      | -      | -      | - | -    | -    |
| Mov Cap-1 Maneuver   | -      | -      | 1250   | - | 441  | 864  |
| Mov Cap-2 Maneuver   | -      | -      | -      | - | 534  | -    |
| Stage 1              | -      | -      | -      | - | 719  | -    |
| Stage 2              | -      | -      | -      | - | 742  | -    |

| Approach             | EB | WB | NB   |
|----------------------|----|----|------|
| HCM Control Delay, s | 0  | 0  | 10.9 |
| HCM LOS              |    |    | B    |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL   | WBT |
|-----------------------|-------|-----|-----|-------|-----|
| Capacity (veh/h)      | 612   | -   | -   | 1250  | -   |
| HCM Lane V/C Ratio    | 0.005 | -   | -   | 0.001 | -   |
| HCM Control Delay (s) | 10.9  | -   | -   | 7.9   | -   |
| HCM Lane LOS          | B     | -   | -   | A     | -   |
| HCM 95th %tile Q(veh) | 0     | -   | -   | 0     | -   |

# HCM 6th Signalized Intersection Summary

## 100: Westnedge Avenue & Milham Avenue

Build (2023) Traffic Projections  
Saturday Peak Hour

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 280                                                                               | 240                                                                               | 155                                                                               | 160                                                                               | 345                                                                               | 355                                                                               | 135                                                                                | 1175                                                                                | 80                                                                                  | 160                                                                                 | 1360                                                                                | 255                                                                                 |
| Future Volume (veh/h)        | 280                                                                               | 240                                                                               | 155                                                                               | 160                                                                               | 345                                                                               | 355                                                                               | 135                                                                                | 1175                                                                                | 80                                                                                  | 160                                                                                 | 1360                                                                                | 255                                                                                 |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                 |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                               | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 295                                                                               | 253                                                                               | 163                                                                               | 168                                                                               | 363                                                                               | 374                                                                               | 142                                                                                | 1237                                                                                | 84                                                                                  | 168                                                                                 | 1432                                                                                | 268                                                                                 |
| Peak Hour Factor             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 352                                                                               | 732                                                                               | 475                                                                               | 220                                                                               | 597                                                                               | 438                                                                               | 167                                                                                | 1752                                                                                | 883                                                                                 | 194                                                                                 | 2594                                                                                | 967                                                                                 |
| Arrive On Green              | 0.10                                                                              | 0.21                                                                              | 0.21                                                                              | 0.06                                                                              | 0.17                                                                              | 0.17                                                                              | 0.09                                                                               | 0.49                                                                                | 0.49                                                                                | 0.11                                                                                | 0.51                                                                                | 0.51                                                                                |
| Sat Flow, veh/h              | 3456                                                                              | 3554                                                                              | 1585                                                                              | 3456                                                                              | 3554                                                                              | 1585                                                                              | 1781                                                                               | 3554                                                                                | 1585                                                                                | 1781                                                                                | 5106                                                                                | 1585                                                                                |
| Grp Volume(v), veh/h         | 295                                                                               | 253                                                                               | 163                                                                               | 168                                                                               | 363                                                                               | 374                                                                               | 142                                                                                | 1237                                                                                | 84                                                                                  | 168                                                                                 | 1432                                                                                | 268                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1728                                                                              | 1777                                                                              | 1585                                                                              | 1728                                                                              | 1777                                                                              | 1585                                                                              | 1781                                                                               | 1777                                                                                | 1585                                                                                | 1781                                                                                | 1702                                                                                | 1585                                                                                |
| Q Serve(g_s), s              | 11.7                                                                              | 8.5                                                                               | 11.2                                                                              | 6.7                                                                               | 13.3                                                                              | 23.5                                                                              | 11.0                                                                               | 37.9                                                                                | 3.5                                                                                 | 13.0                                                                                | 26.8                                                                                | 11.1                                                                                |
| Cycle Q Clear(g_c), s        | 11.7                                                                              | 8.5                                                                               | 11.2                                                                              | 6.7                                                                               | 13.3                                                                              | 23.5                                                                              | 11.0                                                                               | 37.9                                                                                | 3.5                                                                                 | 13.0                                                                                | 26.8                                                                                | 11.1                                                                                |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 352                                                                               | 732                                                                               | 475                                                                               | 220                                                                               | 597                                                                               | 438                                                                               | 167                                                                                | 1752                                                                                | 883                                                                                 | 194                                                                                 | 2594                                                                                | 967                                                                                 |
| V/C Ratio(X)                 | 0.84                                                                              | 0.35                                                                              | 0.34                                                                              | 0.76                                                                              | 0.61                                                                              | 0.85                                                                              | 0.85                                                                               | 0.71                                                                                | 0.10                                                                                | 0.87                                                                                | 0.55                                                                                | 0.28                                                                                |
| Avail Cap(c_a), veh/h        | 481                                                                               | 732                                                                               | 475                                                                               | 358                                                                               | 597                                                                               | 438                                                                               | 261                                                                                | 1752                                                                                | 883                                                                                 | 286                                                                                 | 2594                                                                                | 967                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 61.8                                                                              | 47.5                                                                              | 38.3                                                                              | 64.5                                                                              | 54.0                                                                              | 48.0                                                                              | 62.5                                                                               | 27.6                                                                                | 14.5                                                                                | 61.4                                                                                | 23.5                                                                                | 12.8                                                                                |
| Incr Delay (d2), s/veh       | 9.3                                                                               | 0.3                                                                               | 0.4                                                                               | 5.4                                                                               | 1.8                                                                               | 15.0                                                                              | 14.4                                                                               | 2.4                                                                                 | 0.2                                                                                 | 16.8                                                                                | 0.9                                                                                 | 0.7                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 5.6                                                                               | 3.8                                                                               | 4.4                                                                               | 3.1                                                                               | 6.1                                                                               | 14.1                                                                              | 5.6                                                                                | 16.3                                                                                | 1.3                                                                                 | 6.8                                                                                 | 10.8                                                                                | 4.1                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d),s/veh         | 71.1                                                                              | 47.8                                                                              | 38.7                                                                              | 69.9                                                                              | 55.8                                                                              | 62.9                                                                              | 76.8                                                                               | 30.0                                                                                | 14.7                                                                                | 78.2                                                                                | 24.4                                                                                | 13.5                                                                                |
| LnGrp LOS                    | E                                                                                 | D                                                                                 | D                                                                                 | E                                                                                 | E                                                                                 | E                                                                                 | E                                                                                  | C                                                                                   | B                                                                                   | E                                                                                   | C                                                                                   | B                                                                                   |
| Approach Vol, veh/h          | 711                                                                               |                                                                                   |                                                                                   | 905                                                                               |                                                                                   |                                                                                   | 1463                                                                               |                                                                                     |                                                                                     | 1868                                                                                |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 55.4                                                                              |                                                                                   |                                                                                   | 61.4                                                                              |                                                                                   |                                                                                   | 33.7                                                                               |                                                                                     |                                                                                     | 27.7                                                                                |                                                                                     |                                                                                     |
| Approach LOS                 | E                                                                                 |                                                                                   |                                                                                   | E                                                                                 |                                                                                   |                                                                                   | C                                                                                  |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 19.7                                                                              | 73.5                                                                              | 13.4                                                                              | 33.3                                                                              | 17.6                                                                              | 75.6                                                                              | 18.7                                                                               | 28.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                                | 4.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 22.5                                                                              | 56.5                                                                              | 14.5                                                                              | 28.5                                                                              | 20.5                                                                              | 58.5                                                                              | 19.5                                                                               | 23.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 15.0                                                                              | 39.9                                                                              | 8.7                                                                               | 13.2                                                                              | 13.0                                                                              | 28.8                                                                              | 13.7                                                                               | 25.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.2                                                                               | 8.4                                                                               | 0.2                                                                               | 1.8                                                                               | 0.2                                                                               | 14.0                                                                              | 0.5                                                                                | 0.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th Ctrl Delay           | 39.6                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th LOS                  | D                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

| Intersection             |        |                                                                                   |                                                                                   |        |      |                                                                                   |
|--------------------------|--------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------|------|-----------------------------------------------------------------------------------|
| Int Delay, s/veh         | 0.1    |                                                                                   |                                                                                   |        |      |                                                                                   |
| Movement                 | WBL    | WBR                                                                               | NBT                                                                               | NBR    | SBL  | SBT                                                                               |
| Lane Configurations      |        |  |  |        |      |  |
| Traffic Vol, veh/h       | 0      | 15                                                                                | 1375                                                                              | 15     | 0    | 1675                                                                              |
| Future Vol, veh/h        | 0      | 15                                                                                | 1375                                                                              | 15     | 0    | 1675                                                                              |
| Conflicting Peds, #/hr   | 0      | 0                                                                                 | 0                                                                                 | 0      | 0    | 0                                                                                 |
| Sign Control             | Stop   | Stop                                                                              | Free                                                                              | Free   | Free | Free                                                                              |
| RT Channelized           | -      | None                                                                              | -                                                                                 | None   | -    | None                                                                              |
| Storage Length           | -      | 0                                                                                 | -                                                                                 | -      | -    | -                                                                                 |
| Veh in Median Storage, # | 0      | -                                                                                 | 0                                                                                 | -      | -    | 0                                                                                 |
| Grade, %                 | 0      | -                                                                                 | 0                                                                                 | -      | -    | 0                                                                                 |
| Peak Hour Factor         | 92     | 92                                                                                | 92                                                                                | 92     | 92   | 92                                                                                |
| Heavy Vehicles, %        | 2      | 2                                                                                 | 2                                                                                 | 2      | 2    | 2                                                                                 |
| Mvmt Flow                | 0      | 16                                                                                | 1495                                                                              | 16     | 0    | 1821                                                                              |
| Major/Minor              | Minor1 | Major1                                                                            |                                                                                   | Major2 |      |                                                                                   |
| Conflicting Flow All     | -      | 756                                                                               | 0                                                                                 | 0      | -    | -                                                                                 |
| Stage 1                  | -      | -                                                                                 | -                                                                                 | -      | -    | -                                                                                 |
| Stage 2                  | -      | -                                                                                 | -                                                                                 | -      | -    | -                                                                                 |
| Critical Hdwy            | -      | 6.94                                                                              | -                                                                                 | -      | -    | -                                                                                 |
| Critical Hdwy Stg 1      | -      | -                                                                                 | -                                                                                 | -      | -    | -                                                                                 |
| Critical Hdwy Stg 2      | -      | -                                                                                 | -                                                                                 | -      | -    | -                                                                                 |
| Follow-up Hdwy           | -      | 3.32                                                                              | -                                                                                 | -      | -    | -                                                                                 |
| Pot Cap-1 Maneuver       | 0      | 351                                                                               | -                                                                                 | -      | 0    | -                                                                                 |
| Stage 1                  | 0      | -                                                                                 | -                                                                                 | -      | 0    | -                                                                                 |
| Stage 2                  | 0      | -                                                                                 | -                                                                                 | -      | 0    | -                                                                                 |
| Platoon blocked, %       |        |                                                                                   | -                                                                                 | -      |      | -                                                                                 |
| Mov Cap-1 Maneuver       | -      | 351                                                                               | -                                                                                 | -      | -    | -                                                                                 |
| Mov Cap-2 Maneuver       | -      | -                                                                                 | -                                                                                 | -      | -    | -                                                                                 |
| Stage 1                  | -      | -                                                                                 | -                                                                                 | -      | -    | -                                                                                 |
| Stage 2                  | -      | -                                                                                 | -                                                                                 | -      | -    | -                                                                                 |
| Approach                 | WB     | NB                                                                                |                                                                                   | SB     |      |                                                                                   |
| HCM Control Delay, s     | 15.8   | 0                                                                                 |                                                                                   | 0      |      |                                                                                   |
| HCM LOS                  | C      |                                                                                   |                                                                                   |        |      |                                                                                   |
| Minor Lane/Major Mvmt    | NBT    | NBRWBLn1                                                                          |                                                                                   | SBT    |      |                                                                                   |
| Capacity (veh/h)         | -      | 351                                                                               |                                                                                   | -      |      |                                                                                   |
| HCM Lane V/C Ratio       | -      | 0.046                                                                             |                                                                                   | -      |      |                                                                                   |
| HCM Control Delay (s)    | -      | 15.8                                                                              |                                                                                   | -      |      |                                                                                   |
| HCM Lane LOS             | -      | C                                                                                 |                                                                                   | -      |      |                                                                                   |
| HCM 95th %tile Q(veh)    | -      | 0.1                                                                               |                                                                                   | -      |      |                                                                                   |

| Intersection             |        |      |        |       |        |      |
|--------------------------|--------|------|--------|-------|--------|------|
| Int Delay, s/veh         | 0.6    |      |        |       |        |      |
| Movement                 | EBT    | EBR  | WBL    | WBT   | NBL    | NBR  |
| Lane Configurations      | ↑↑     |      | ↑      | ↑↑    | ↑      |      |
| Traffic Vol, veh/h       | 450    | 30   | 5      | 830   | 30     | 5    |
| Future Vol, veh/h        | 450    | 30   | 5      | 830   | 30     | 5    |
| Conflicting Peds, #/hr   | 0      | 0    | 0      | 0     | 0      | 0    |
| Sign Control             | Free   | Free | Free   | Free  | Stop   | Stop |
| RT Channelized           | -      | None | -      | None  | -      | None |
| Storage Length           | -      | -    | 25     | -     | 0      | -    |
| Veh in Median Storage, # | 0      | -    | -      | 0     | 0      | -    |
| Grade, %                 | 0      | -    | -      | 0     | 0      | -    |
| Peak Hour Factor         | 92     | 92   | 92     | 92    | 92     | 92   |
| Heavy Vehicles, %        | 2      | 2    | 2      | 2     | 2      | 2    |
| Mvmt Flow                | 489    | 33   | 5      | 902   | 33     | 5    |
|                          |        |      |        |       |        |      |
| Major/Minor              | Major1 |      | Major2 |       | Minor1 |      |
| Conflicting Flow All     | 0      | 0    | 522    | 0     | 967    | 261  |
| Stage 1                  | -      | -    | -      | -     | 506    | -    |
| Stage 2                  | -      | -    | -      | -     | 461    | -    |
| Critical Hdwy            | -      | -    | 4.14   | -     | 6.84   | 6.94 |
| Critical Hdwy Stg 1      | -      | -    | -      | -     | 5.84   | -    |
| Critical Hdwy Stg 2      | -      | -    | -      | -     | 5.84   | -    |
| Follow-up Hdwy           | -      | -    | 2.22   | -     | 3.52   | 3.32 |
| Pot Cap-1 Maneuver       | -      | -    | 1041   | -     | 252    | 738  |
| Stage 1                  | -      | -    | -      | -     | 571    | -    |
| Stage 2                  | -      | -    | -      | -     | 601    | -    |
| Platoon blocked, %       | -      | -    |        | -     |        |      |
| Mov Cap-1 Maneuver       | -      | -    | 1041   | -     | 251    | 738  |
| Mov Cap-2 Maneuver       | -      | -    | -      | -     | 251    | -    |
| Stage 1                  | -      | -    | -      | -     | 571    | -    |
| Stage 2                  | -      | -    | -      | -     | 598    | -    |
|                          |        |      |        |       |        |      |
|                          |        |      |        |       |        |      |
| Approach                 | EB     |      | WB     |       | NB     |      |
| HCM Control Delay, s     | 0      |      | 0.1    |       | 20.1   |      |
| HCM LOS                  | C      |      |        |       |        |      |
|                          |        |      |        |       |        |      |
|                          |        |      |        |       |        |      |
| Minor Lane/Major Mvmt    | NBLn1  | EBT  | EBR    | WBL   | WBT    |      |
| Capacity (veh/h)         | 277    | -    | -      | 1041  | -      |      |
| HCM Lane V/C Ratio       | 0.137  | -    | -      | 0.005 | -      |      |
| HCM Control Delay (s)    | 20.1   | -    | -      | 8.5   | -      |      |
| HCM Lane LOS             | C      | -    | -      | A     | -      |      |
| HCM 95th %tile Q(veh)    | 0.5    | -    | -      | 0     | -      |      |



| Intersection             |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh         | 0.2  |      |      |      |      |      |
| Movement                 | EBT  | EBR  | WBL  | WBT  | NBL  | NBR  |
| Lane Configurations      | ↑↑   |      | ↑    | ↑↑   | ↑    |      |
| Traffic Vol, veh/h       | 450  | 5    | 5    | 830  | 5    | 5    |
| Future Vol, veh/h        | 450  | 5    | 5    | 830  | 5    | 5    |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Stop | Stop |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | -    | -    | 25   | -    | 0    | -    |
| Veh in Median Storage, # | 0    | -    | -    | 0    | 0    | -    |
| Grade, %                 | 0    | -    | -    | 0    | 0    | -    |
| Peak Hour Factor         | 92   | 92   | 92   | 92   | 92   | 92   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 489  | 5    | 5    | 902  | 5    | 5    |

| Major/Minor          | Major1 | Major2 | Minor1 |   |      |
|----------------------|--------|--------|--------|---|------|
| Conflicting Flow All | 0      | 0      | 494    | 0 | 953  |
| Stage 1              | -      | -      | -      | - | 492  |
| Stage 2              | -      | -      | -      | - | 461  |
| Critical Hdwy        | -      | -      | 4.14   | - | 6.84 |
| Critical Hdwy Stg 1  | -      | -      | -      | - | 5.84 |
| Critical Hdwy Stg 2  | -      | -      | -      | - | 5.84 |
| Follow-up Hdwy       | -      | -      | 2.22   | - | 3.52 |
| Pot Cap-1 Maneuver   | -      | -      | 1066   | - | 257  |
| Stage 1              | -      | -      | -      | - | 580  |
| Stage 2              | -      | -      | -      | - | 601  |
| Platoon blocked, %   | -      | -      | -      | - | -    |
| Mov Cap-1 Maneuver   | -      | -      | 1066   | - | 256  |
| Mov Cap-2 Maneuver   | -      | -      | -      | - | 386  |
| Stage 1              | -      | -      | -      | - | 580  |
| Stage 2              | -      | -      | -      | - | 598  |

| Approach             | EB | WB  | NB   |
|----------------------|----|-----|------|
| HCM Control Delay, s | 0  | 0.1 | 12.2 |
| HCM LOS              |    |     | B    |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL   | WBT |
|-----------------------|-------|-----|-----|-------|-----|
| Capacity (veh/h)      | 510   | -   | -   | 1066  | -   |
| HCM Lane V/C Ratio    | 0.021 | -   | -   | 0.005 | -   |
| HCM Control Delay (s) | 12.2  | -   | -   | 8.4   | -   |
| HCM Lane LOS          | B     | -   | -   | A     | -   |
| HCM 95th %tile Q(veh) | 0.1   | -   | -   | 0     | -   |

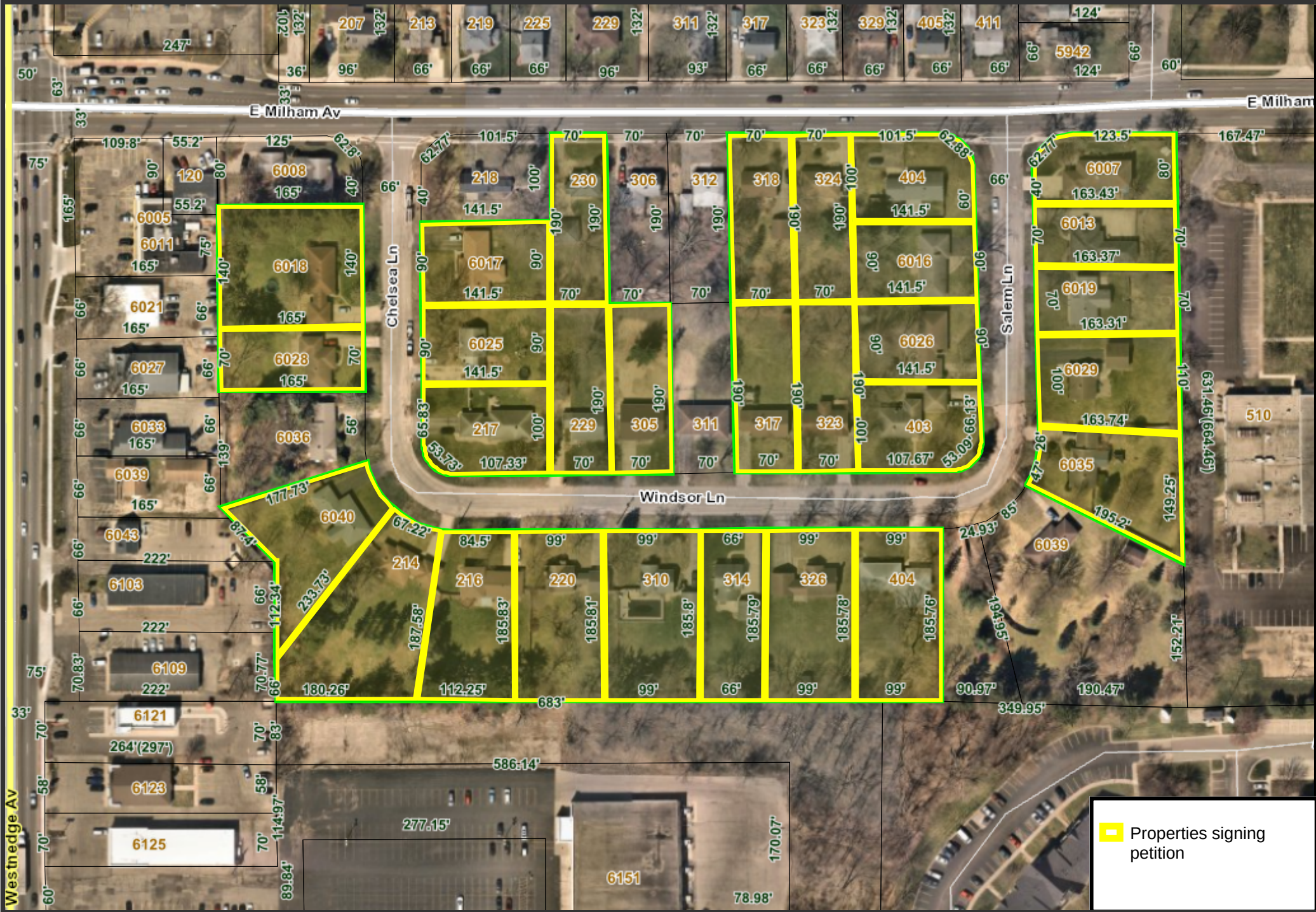
| Intersection             |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh         | 0.1  |      |      |      |      |      |
| Movement                 | EBT  | EBR  | WBL  | WBT  | NBL  | NBR  |
| Lane Configurations      | ↑↑   |      | ↑    | ↑↑   | ↑    |      |
| Traffic Vol, veh/h       | 450  | 5    | 5    | 830  | 5    | 2    |
| Future Vol, veh/h        | 450  | 5    | 5    | 830  | 5    | 2    |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Stop | Stop |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | -    | -    | 25   | -    | 0    | -    |
| Veh in Median Storage, # | 0    | -    | -    | 0    | 0    | -    |
| Grade, %                 | 0    | -    | -    | 0    | 0    | -    |
| Peak Hour Factor         | 91   | 91   | 91   | 91   | 91   | 91   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 495  | 5    | 5    | 912  | 5    | 2    |

| Major/Minor          | Major1 | Major2 | Minor1 |   |      |
|----------------------|--------|--------|--------|---|------|
| Conflicting Flow All | 0      | 0      | 500    | 0 | 964  |
| Stage 1              | -      | -      | -      | - | 498  |
| Stage 2              | -      | -      | -      | - | 466  |
| Critical Hdwy        | -      | -      | 4.14   | - | 6.84 |
| Critical Hdwy Stg 1  | -      | -      | -      | - | 5.84 |
| Critical Hdwy Stg 2  | -      | -      | -      | - | 5.84 |
| Follow-up Hdwy       | -      | -      | 2.22   | - | 3.52 |
| Pot Cap-1 Maneuver   | -      | -      | 1060   | - | 253  |
| Stage 1              | -      | -      | -      | - | 576  |
| Stage 2              | -      | -      | -      | - | 598  |
| Platoon blocked, %   | -      | -      | -      | - | -    |
| Mov Cap-1 Maneuver   | -      | -      | 1060   | - | 252  |
| Mov Cap-2 Maneuver   | -      | -      | -      | - | 382  |
| Stage 1              | -      | -      | -      | - | 576  |
| Stage 2              | -      | -      | -      | - | 595  |

| Approach             | EB | WB  | NB   |
|----------------------|----|-----|------|
| HCM Control Delay, s | 0  | 0.1 | 13.3 |
| HCM LOS              |    |     | B    |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL   | WBT |
|-----------------------|-------|-----|-----|-------|-----|
| Capacity (veh/h)      | 444   | -   | -   | 1060  | -   |
| HCM Lane V/C Ratio    | 0.017 | -   | -   | 0.005 | -   |
| HCM Control Delay (s) | 13.3  | -   | -   | 8.4   | -   |
| HCM Lane LOS          | B     | -   | -   | A     | -   |
| HCM 95th %tile Q(veh) | 0.1   | -   | -   | 0     | -   |





# Glenbrook Village

Residences signing  
petition



Map Publication:  
12/01/2023 11:48 AM



**Disclaimer:** This map does not represent a survey or legal document and is provided on an "as is" basis. City of Portage expresses no warranty for the information displayed on this map document.

 Properties signing  
petition

404 Windsor Lane

Portage MI 49002

Eric Feldt, City Planner

City of Portage

7900 S. Westnedge Avenue

Portage MI 49002

Dear Mr. Feldt:

Thank you for accepting our petition for the residents and owners in the plat known as Glenbrook Village, City of Portage. We are strongly opposed to any change in our current single-family residential zoning status.

It has come to our attention that developers have purchased the first two homes on the west side of Chelsea with plans to demolish them to build commercial property. We strongly encourage the City to deny demolition on those homes which would destroy the historical integrity of our mid-century middle class neighborhood. It would also bring noise, air, light and traffic problems to our plat.

We appreciate your kind consideration of our request.

Cordially,



Mary Skinner

Phone 269-370-6070

*August 29, 2023*



## PETITION

We, the residents/owners of property in the plat described as  
**GLENBROOK VILLAGE, City of Portage, County of Kalamazoo, Michigan  
49002**, hereby declare that we are strongly **OPPOSED** to any rezoning  
to anything other than single-family residential property.

**NAME**

**ADDRESS**

Celia Wolthuis

314 Windsor Lane

Kevin [Signature]

317 Windsor Lane

Elizabeth M. Kim

305 WINDSOR LANE

[Signature]

Brenda Reeves

310 Windsor Lane

Kristine Van Huis

326 Windsor Lane

Carolyn M. Haab

229 Windsor Lane

Cassey Vogelsberg

220 Windsor Ln



## PETITION

We, the residents/owners of property in the plat described as  
GLENBROOK VILLAGE, City of Portage, County of Kalamazoo, Michigan  
49002, hereby declare that we are strongly OPPOSED to any rezoning  
to anything other than single-family residential property.

NAME

ADDRESS

Rico Lopez

217 Windsor Lane  
Portage MI 49002

LSH LOPEZ

217 Windsor Lane  
Portage, MI 49002

-----

-----

-----

-----

-----

-----

-----

-----

-----

-----

## PETITION

**We, the residents/owners of property in the plat described as GLENBROOK VILLAGE, City of Portage, County of Kalamazoo, Michigan 49002, hereby declare that we are strongly OPPOSED to any rezoning to anything other than single-family residential property.**

**NAME**

**ADDRESS**

Jessica States - ~~Blatt~~

404 Windsor Ln Portage MI 49002

Chris Neubauer - Chris Neubauer

404 Windsor Ln Portage MI 49002

Mary Skinner

404 Windsor Ln. Portage 49002

-----

-----

-----

-----

-----

-----

-----

-----

## PETITION

We, the residents/owners of property in the plat described as  
**GLENBROOK VILLAGE, City of Portage, County of Kalamazoo, Michigan  
49002**, hereby declare that we are strongly **OPPOSED** to any rezoning  
to anything other than single-family residential property.

**NAME**

**ADDRESS**

Urene Kosanke  
Vickie Kosanke

216 Windsor Ln

Dennis Kosanke

216 Windsor Ln

Kelly Rodriguez

214 Windsor

Roberto Holguin

403 Windsor

## PETITION

**We, the residents/owners of property in the plat described as  
GLENBROOK VILLAGE, City of Portage, County of Kalamazoo, Michigan  
49002, hereby declare that we are strongly OPPOSED to any rezoning  
to anything other than single-family residential property.**

**NAME**

**ADDRESS**

Amy Nelson

6025 Chelsea Ln

Sammy

6018 Chelsea Ln

Mike Jones

6018 Chelsea Ln

Evelyn Dezoete

6040 Chelsea Ln.

-----

-----

-----

-----

-----

-----

**PETITION**

**We, the residents/owners of property in the plat described as  
GLENBROOK VILLAGE, City of Portage, County of Kalamazoo, Michigan  
49002, hereby declare that we are strongly OPPOSED to any rezoning  
to anything other than single-family residential property.**

**NAME**

**ADDRESS**

Mohammed Mohammed

6017 Chelsea Ln  
Portage, MI 49002

-----

-----

-----

-----

-----

-----

-----

-----

-----

-----

-----

-----



## PETITION

We, the residents/owners of property in the plat described as  
GLENBROOK VILLAGE, City of Portage, County of Kalamazoo, Michigan  
49002, hereby declare that we are strongly OPPOSED to any rezoning  
to anything other than single-family residential property.

NAME

ADDRESS

Joe Hm Jake Hayes

6013 SALEM LN. PORTAGE MI 49002

Giulia Hayes

6013 Salem Ln. Portage, MI 49002

Linda Francisco

6007 Salem Ln. Portage MI 49002

Stanley T. Francisco  
Zach Pearson

6007 Salem Ln Portage, MI 49002

[Signature]

404 E Milham Ave

Diane Kessel

318 E. Milham Portage 02

Jose King  
Rikilee King

230 E Milham Ave

## PETITION

We, the residents/owners of property in the plat described as GLENBROOK VILLAGE, City of Portage, County of Kalamazoo, Michigan 49002, hereby declare that we are strongly OPPOSED to any rezoning to anything other than single-family residential property.

NAME

Andrew Smith  
Andrew Smith

ADDRESS

323 Windsor Lane

Robert Stanley

6028 Chelsea

Dana H. Adams

6026 SALEM LN

Danice Adams

6026 Salem Ln

Linda Sturtevant

6029 Salem Ln

Jane V Ferguson

6019 Salem Ln

Lois E. Krueger

6016 Salem Ln.

## PETITION

We, the residents/owners of property in the plat described as  
GLENBROOK VILLAGE, City of Portage, County of Kalamazoo, Michigan  
49002, hereby declare that we are strongly OPPOSED to any rezoning  
to anything other than single-family residential property.

NAME

ADDRESS

Dannie Root Danni Root

324 East Milham Ave

**PETITION**

**We, the residents/owners of property in the plat described as  
GLENBROOK VILLAGE, City of Portage, County of Kalamazoo, Michigan  
49002, hereby declare that we are strongly OPPOSED to any rezoning  
to anything other than single-family residential property.**

**NAME**

**ADDRESS**

*Brian Metscfe*

*6035 Salem Lane*

For Restrictions See Liber 551 Page 152, For Amendment to Restrictions See Liber 558 Page 259

# "GLENBROOK VILLAGE"

Section 10, T. 3 S., R. 11 W.  
TOWNSHIP OF PORTAGE, COUNTY OF KALAMAZOO, MICHIGAN  
WILLIAM H. WILKINS, Registered Land Surveyor  
Scale, 100 feet per inch



## DESCRIPTION

The land embraced in the annexed plat of "Glenbrook Village" is located in the Northwest 1/4 of Section 10, T. 3 S., R. 11 W., and is more particularly described as follows:

Beginning at the Northwest corner of Section 10, T. 3 S., R. 11 W., and running thence South 89°-51' East along the North line of said section 1333.53 feet to the Northeast corner of the West 1/2 of the Northwest 1/4 of said section, thence South 0°-03' West along the East line of the West 1/2 of the Northwest 1/4 of said section 664.46 feet to the Southeast corner of the North 1/2 of the Northwest 1/4 of the Northwest 1/4 of said section; thence North 89°-52' West along the South line of the North 1/2 of the Northwest 1/4 of the Northwest 1/4 of said section 1332.95 feet to the West line of said section; thence North along the West line of said section 664.84 feet to the place of beginning.

## SURVEYOR'S CERTIFICATE

I hereby certify that the Plat hereon delineated is a correct one and that permanent monuments, consisting of iron pipes of not less than one-half (1/2) inches in diameter by forty-eight (48) inches in length, set in concrete bases four (4) inches in diameter and forty-eight (48) inches in depth have been placed at all points marked thus (O), as thereon shown, at all angles in the boundaries of the land platted and at all the intersections of the Lanes and Avenues, and at the intersections of the Lanes and Avenues with the boundary of the plat.

*William H. Wilkins*  
WILLIAM H. WILKINS, Registered Land Surveyor

## DEDICATION

KNOW ALL MEN BY THESE PRESENTS: That we, Alfred T. Newbold and Glee D. Newbold, his wife, as proprietors, and the First Federal Savings and Loan Association of Kalamazoo, a corporation organized under the laws of the United States of America, as Mortgagee, by Robert C. Dexter, its President, and Wade Van Valkenburg, its Secretary, acting pursuant to authority granted by its Board of Directors, and the American National Bank of Kalamazoo, a Corporation organized under the laws of the United States of America, as Mortgagee, by Abe DeBoer, its Vice-President and Wellington K. Brown, its Assistant Vice-President, acting pursuant to authority granted by its Board of Directors, have caused the land embraced in the annexed plat to be surveyed, laid out and platted, to be known as "Glenbrook Village," Section 10, T. 3 S., R. 11 W., Township of Portage, County of Kalamazoo, Michigan, and those portions of Westnedge Avenue (U. S. No. 131); Milham Avenue, Chelsea Lane; Windsor Lane and Salem Lane as included within the boundaries of said Plat are hereby dedicated to the public.

Signed, Sealed and Delivered (As to Alfred T. Newbold and Glee D. Newbold)  
In the Presence of:

*William H. Wilkins*  
WILLIAM H. WILKINS  
*Kenneth E. Wilkins*  
KENNETH E. WILKINS

*Alfred T. Newbold* (L. S.)  
ALFRED T. NEWBOLD  
*Glee D. Newbold* (L. S.)  
GLEE D. NEWBOLD

Signed, Sealed and Delivered (As to First Federal Savings and Loan Association of Kalamazoo)  
In the Presence of:

*Kenneth E. Wilkins*  
KENNETH E. WILKINS  
*Ila S. Beals*  
ILA S. BEALS

First Federal Savings and Loan Association of Kalamazoo (A Federal Corporation) (L. S.)  
By *Robert C. Dexter* (L. S.)  
ROBERT C. DEXTER, President  
And *Wade Van Valkenburg* (L. S.)  
WADE VAN VALKENBURG, Secretary

Signed, Sealed and Delivered (As to the American National Bank of Kalamazoo)  
In the Presence of:

*Bethel H. Pell*  
BETHEL H. PELL  
*Kenneth E. Wilkins*  
KENNETH E. WILKINS  
STATE OF MICHIGAN } ss.  
County of Kalamazoo }

American National Bank of Kalamazoo (L. S.)  
A Federal Corporation  
By *Abe DeBoer* (L. S.)  
ABE DEBOER, Vice-President  
And *Wellington K. Brown* (L. S.)  
WELLINGTON K. BROWN, Assistant Vice-President

On this 3th day of August, A. D. 1947, before me a Notary Public in and for said County, appeared Alfred T. Newbold and Glee D. Newbold, his wife, as proprietors, known by me to be the same persons who executed the above instrument and acknowledged the same to be their free act and deed; also appeared Robert C. Dexter, President, and Wade Van Valkenburg, Secretary, to me personally known who being by me duly sworn did say that they are the President and Secretary of the First Federal Savings and Loan Association of Kalamazoo, and that the seal affixed to the foregoing instrument is the corporate seal of said corporation and that said instrument was signed and sealed in behalf of said corporation, as Mortgagee, by authority of its Board of Directors, and said Robert C. Dexter and Wade Van Valkenburg acknowledged said instrument to be the free act and deed of said Corporation; also appeared Abe DeBoer, Vice-President and Wellington K. Brown, Assistant Vice-President to me personally known who being by me duly sworn, did say that they are the Vice-President and Assistant Vice-President of the American National Bank of Kalamazoo, and that the seal affixed to the foregoing instrument is the corporate seal of said Corporation and that said instrument was signed and sealed in behalf of said Corporation, as Mortgagee, by authority of its Board of Directors, and said Abe DeBoer and Wellington K. Brown acknowledged said instrument to be the free act and deed of said Corporation.

*Kenneth E. Wilkins*  
KENNETH E. WILKINS,  
Notary Public, Kalamazoo County, Michigan

My Commission expires May 21, 1948, 19.

## CERTIFICATE OF APPROVAL BY BOARD OF COUNTY ROAD COMMISSIONERS

COUNTY OF KALAMAZOO } ss.  
State of Michigan }

The annexed plat was examined and approved by the Kalamazoo County Board of Road Commissioners.

Aug 18th 1947.  
*C. L. Raseman*  
C. L. RASEMAN, Chairman  
*Forrest B. Weinberg*  
FORREST B. WEINBERG, Member  
*Ernest Jackson*  
ERNEST JACKSON, Member

APPROVED  
*Charles M. Ziff*  
CHARLES M. ZIFF  
STATE HIGHWAY COMMISSIONER

## CERTIFICATE OF APPROVAL BY TOWNSHIP BOARD

TOWNSHIP OF PORTAGE } ss.  
County of Kalamazoo  
State of Michigan }

The annexed plat was approved by the Township Board.

*CEAUS SCHURING*  
CEAUS SCHURING, Township Clerk

## CERTIFICATE OF APPROVAL BY COUNTY BOARD OF EXAMINERS

COUNTY OF KALAMAZOO } ss.  
State of Michigan }

The annexed plat was approved by the County Board of Examiners.

*Flora Garrison*  
FLORA GARRISON, Register of Deeds, Chairman  
*Anthony Stamm*  
ANTHONY STAMM, County Clerk  
*Leonard Klot*  
LEONARD KLOT, County Treasurer

## CERTIFICATE AS TO STATE TRUNK LINE OR FEDERAL AIDED ROADS

We hereby certify that the annexed plat appears to include land bordering on a State Trunk Line.

*Flora Garrison*  
FLORA GARRISON, Register of Deeds, Chairman  
*Anthony Stamm*  
ANTHONY STAMM, County Clerk  
*Leonard Klot*  
LEONARD KLOT, County Treasurer

## COUNTY TAX CERTIFICATE

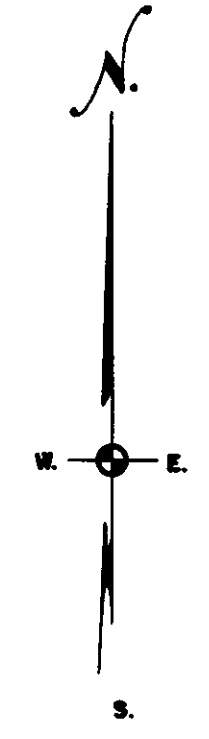
I hereby certify that I have examined the records in my office relating to the lands in "Glenbrook Village," Section 10, T. 3 S., R. 11 W., Township of Portage, County of Kalamazoo, Michigan, dated Aug 13 1947, and from such examination it appears that all the taxes have been fully paid for five years preceding said date, and that there are no tax liens or titles held by the state or individual for five years preceding said date.

*Leonard Klot*  
LEONARD KLOT, County Treasurer

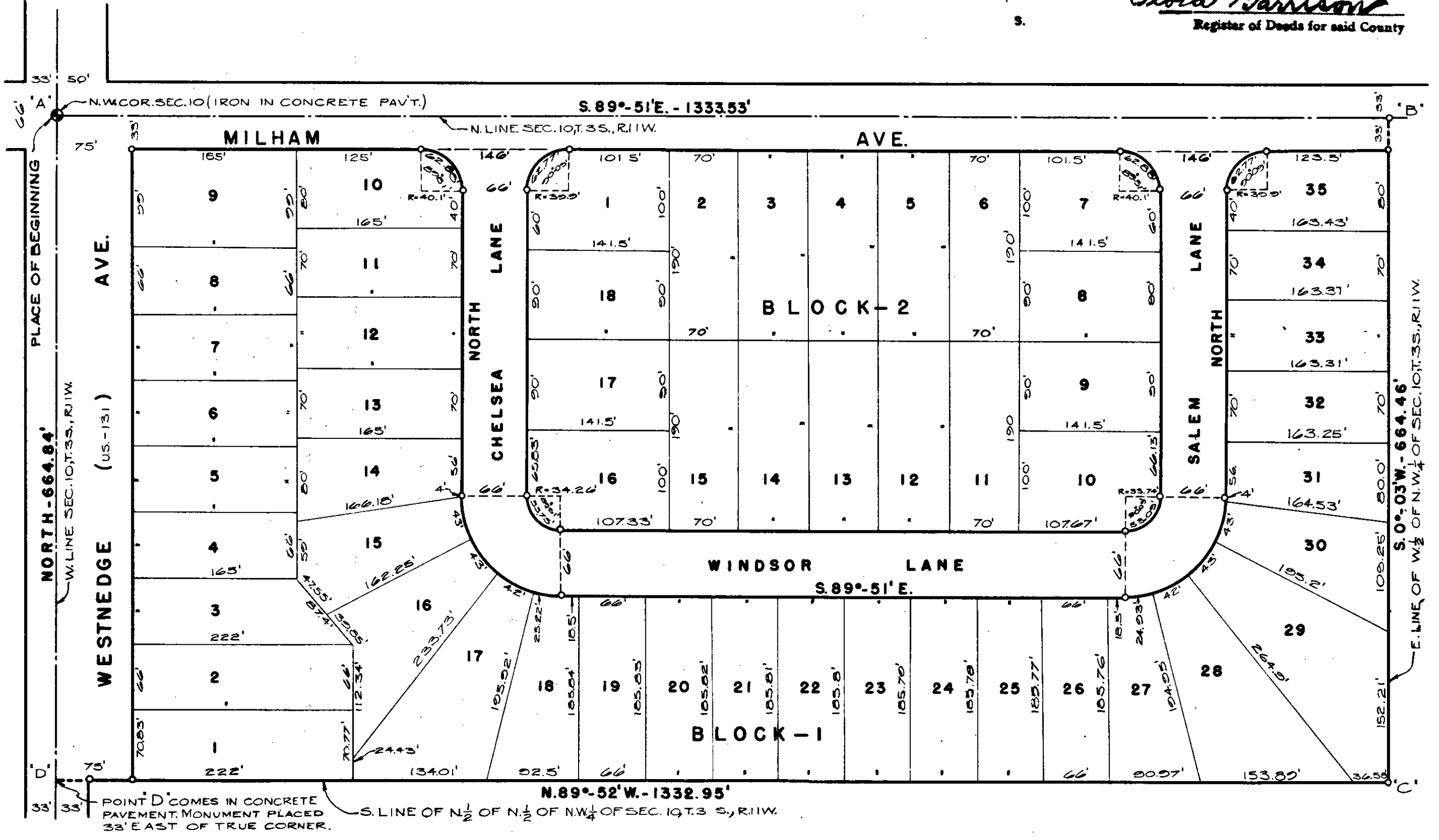
Kalamazoo, Michigan Aug 13 1947.  
NOTE: All dimensions are in feet and decimals thereof.

Examined and Approved

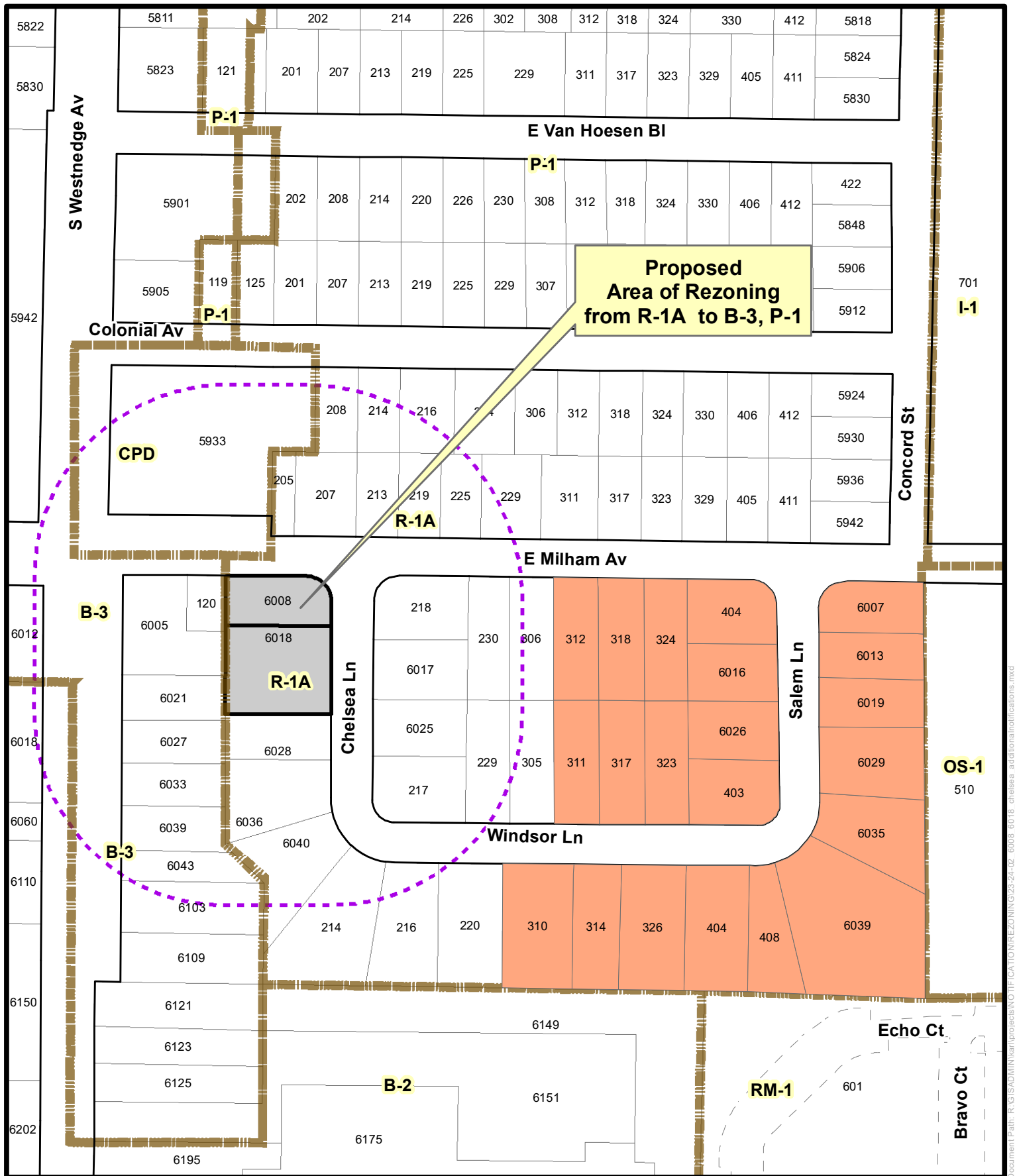
*Mayme Jewell Purdy*  
Mayme Jewell Purdy, Deputy Auditor General



STATE OF MICHIGAN } ss.  
Kalamazoo County }  
Received for record this 27th  
day of September, A. D. 1947, at  
2:40 o'clock P. M., and Recorded  
in Liber 16 of Plat page 52  
*Flora Garrison*  
Register of Deeds for said County







- Additional properties being notified
- Zoning Boundary
- 300' Notification Area
- Subject Parcels

## Notification Map

### Rezoning: 23/24 - 2

### 6008, 6018 Chelsea Lane



1 inch = 200 feet  
Date: 11/29/2023  
(205)

Document Path: R:\GIS\ADMIN\Projects\NOTIFICATION\REZONING\23-24-02\_6008\_6018\_chelsea\_additionalnotifications.mxd





Document Path: R:\GIS\ADMIN\Map\projects\NO TIFICATION\REZONING\23-24-02\_6008\_6018\_chelsea\_aerial.mxd

Aerial Map  
Rezoning: 22/23 - 9  
6008, 6018 Chelsea Lane



1 inch = 100 feet  
Date: 11/6/2023





## Parcel Map



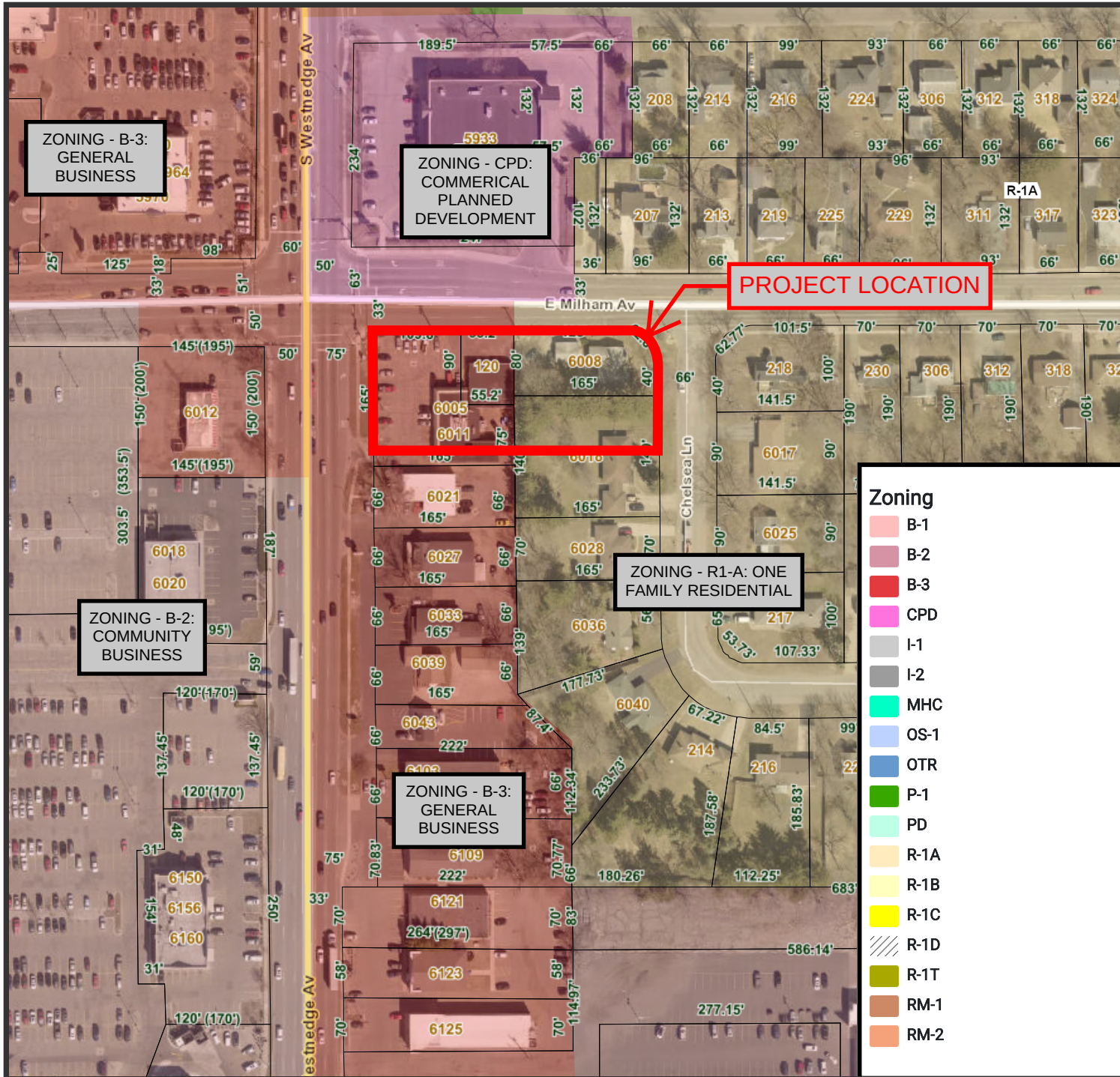
Map Publication:  
10/11/2023 9:36 AM



powered by  
**FetchGIS** 

**Disclaimer:** This map does not represent a survey or legal document and is provided on an "as is" basis. City of Portage expresses no warranty for the information displayed on this map document.





## Zoning Map

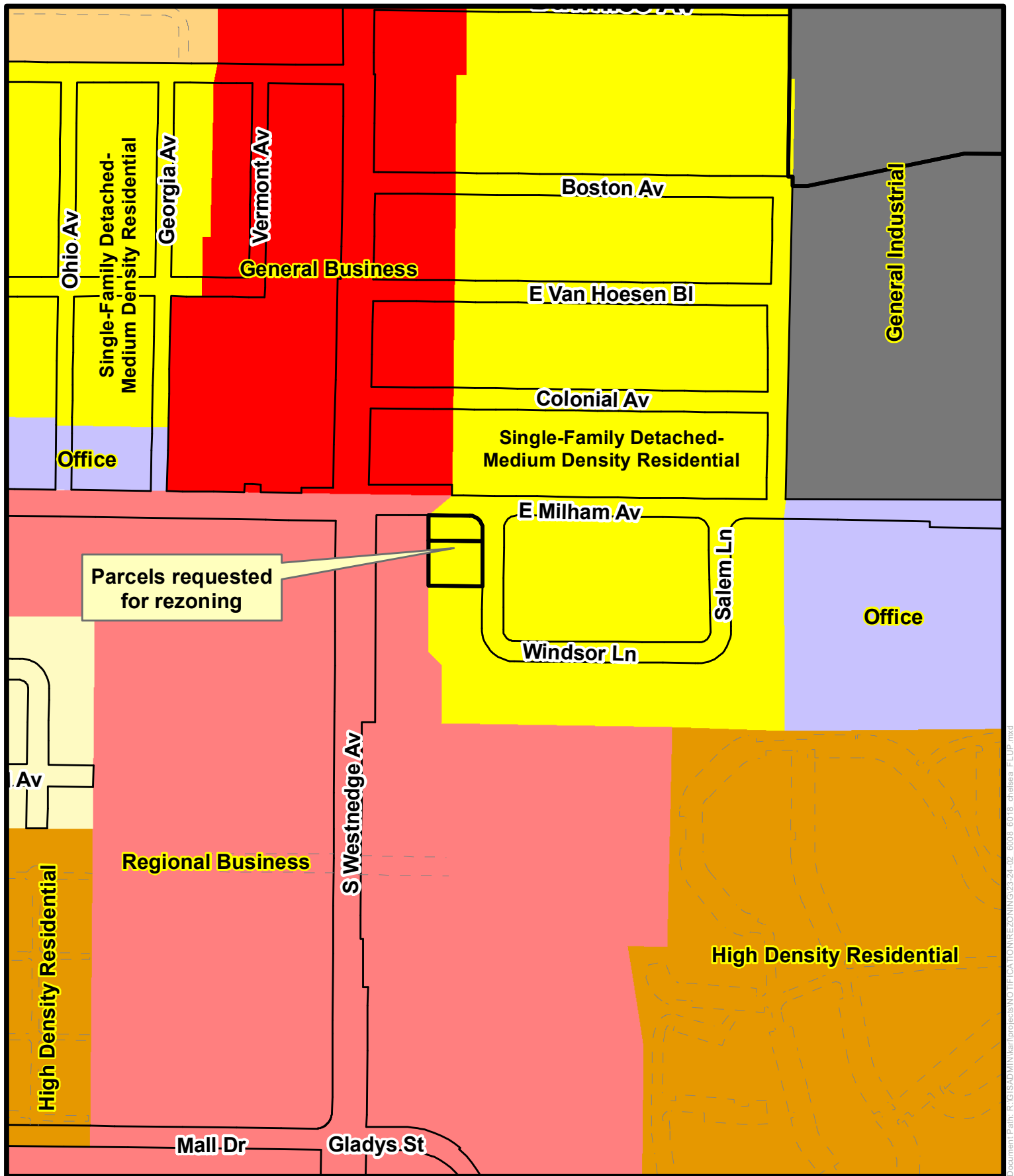


Map Publication:  
10/11/2023 10:31 AM



powered by  
**FetchGIS**

**Disclaimer:** This map does not represent a survey or legal document and is provided on an "as is" basis. City of Portage expresses no warranty for the information displayed on this map document.



#### Proposed Rezoning

- Proposed Rezoning
- Low Density Residential
- Single-Family Detached-Medium Density Residential
- Medium-Density Residential
- High Density Residential
- Local Business
- Regional Business
- General Business

- Office
- Shaver Road Business Corridor
- Research, Development & Technology
- General Industrial
- Park / Recreation
- Gourdneck State Game Area
- Public
- City Centre

## Future Land Use Map Rezoning: 23/24 -2 6008, 6018 Chelsea Ln



1 inch = 393 feet  
Date: 11/6/2023



## Staff's Site Pictures – November 27, 2023



Figure 1. Looking at SE corner of S. Westnedge Ave. and Milham Ave. (6011 S. Westnedge Ave., 120 E. Milham Ave.): Skinny Kenny's BBQ (moved), Little Caesar Pizza (closed), and Betty Bella Braids (closed).



Figure 2. Looking south across E. Milham Avenue at Betty Bella Braids (white building) at 120 E. Milham Avenue.





Figure 3. Looking south across E. Milham Avenue at 6008 Chelsea Lane (subject properties) single family residence with detached garage; owned by applicant.



Figure 4. Looking at E. Milham Ave. & Chelsea Ln intersection at 6008 Chelsea Lane.



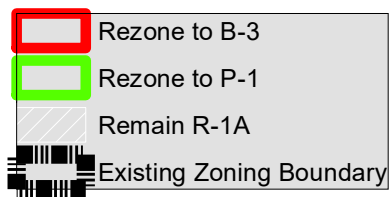
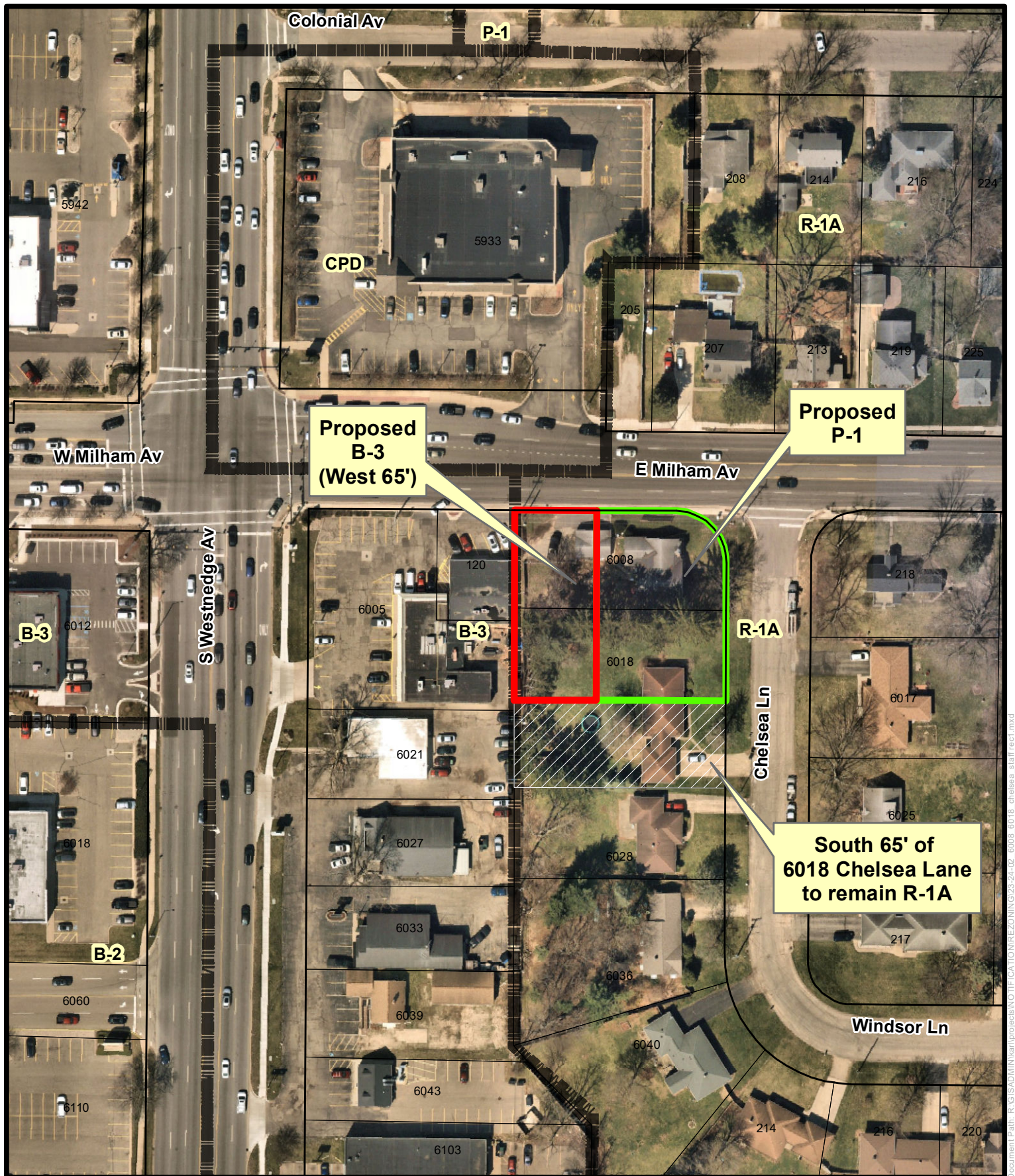


Figure 5. Looking west at yard space between 6008 Chelsea Ln (L) and 6008 Chelsea Lane (R).



Figure 6. Looking west at 6008 Chelsea Ln (brick) (subject properties) – single family house with attached 2-car garage; owned by applicant.



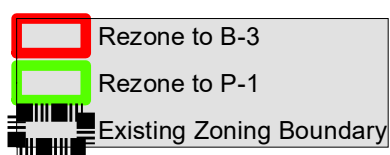
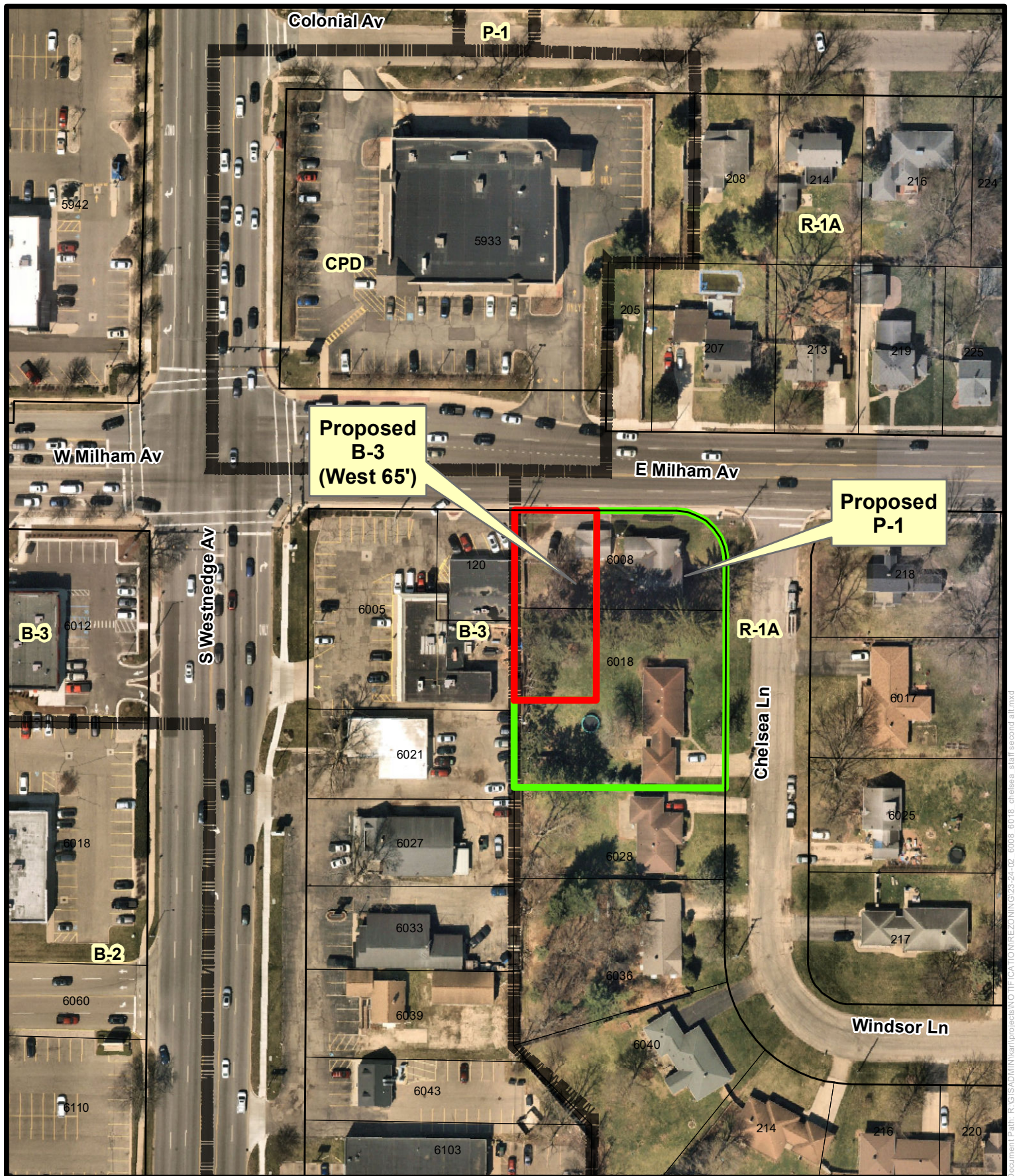


# **Staff's Primary Alternative Rezoning: 23/24 - 2 6008, 6018 Chelsea Lane**



1 inch = 100 feet  
Date: 11/28/2023  
(213)





**Staff's Secondary Alternative  
Rezoning: 23/24 - 2  
6008, 6018 Chelsea Lane**

**PORTAGE**  
A Natural Place to Move

1 inch = 100 feet  
Date: 11/28/2023  
(214)

Document Path: R:\GIS\ADMIN\Map\projects\NO TIFICATION\REZONING\23-24-02\_6008\_6018\_chelsea\_staff second alt.mxd



## Eric Feldt

---

**From:** dpkosanke@chartermi.net  
**Sent:** Friday, December 1, 2023 3:10 PM  
**To:** Eric Feldt  
**Subject:** Rezoning: 23/24-2 6008,6018 Chelsea Lane

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

### CAUTION: THIS EMAIL IS FROM AN EXTERNAL SENDER

Do not click on links or open attachments unless this is from a sender you know and trust.

Members of the Planning  
Commission:

Vickie and I have lived at 216 Windsor Lane for approximately 31 years. We have stayed living here because though this the neighborhood is close to everything, and it has always been safe and quiet. We have raised our children, grandchildren and now great grandchildren here without any problems even as Portage has continued to grow. Now comes The Meyer C. Weiner company buying up part of our neighborhood and turning them to rentals. Those rentals have not been maintained properly because it was intended to turn them commercial. I understand they wanting to make profits, but these profits are at the expense of our neighborhood. It will cause property values to go down. It will cause traffic concerns and safety issues. This will be caused by the Raising Cane fast food starting up there who is planning on staying open until 3am or any other business that follows. It will not be safe for children, walkers or bikers. It will be the first step in destroying our neighborhood and bring more rezoning and sell offs. The traffic increase will cause problems and safety concerns for residents to enter and leave this neighborhood. This is why we are strongly opposed to rezoning and would like to finish our retirement here.

Thank

You  
Dennis and Vickie Kosanke

## Eric Feldt

---

**From:** Roberto Holguin <robertoholguin1936@gmail.com>  
**Sent:** Monday, December 4, 2023 10:31 AM  
**To:** Eric Feldt  
**Subject:** Rezoning application No. 23/24-2

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

### CAUTION: THIS EMAIL IS FROM AN EXTERNAL SENDER

Do not click on links or open attachments unless this is from a sender you know and trust.

Dear Planning Commission,

My name is Roberto Holguin and I live at 403 Windsor Ln very near to where this proposed zoning change would take place. I have enjoyed this nice, quiet location for over 20 years. I especially love to see the deer that frequent this area, often walking right through my yard.

I am adamantly opposed to changing this neighborhood to a commercial area which would disrupt the beauty and tranquility of this location. I am concerned that making the change would cause increased traffic in the area and disruption to our beautiful area. Likely driving away the wildlife and even reducing our property value.

I love the neighborhood as it is, not as a commercial center. No restaurant or parking wanted here!

Please, give consideration to the local residents rather than to commercial interests.

Respectfully,

Roberto Holguin

## Eric Feldt

---

**From:** Andrew Smith <smittygoblue40@yahoo.com>  
**Sent:** Wednesday, December 6, 2023 3:23 PM  
**To:** Eric Feldt  
**Subject:** Rezoning Request

CAUTION: THIS EMAIL IS FROM AN EXTERNAL SENDER Do not click on links or open attachments unless this is from a sender you know and trust.

To whom it may concern,

My name is Andy Smith. I am a property owner and resident at 323 Windsor Lane. I am strongly opposed to the proposed rezoning request for a future restaurant in the neighborhood.

There are many reasons I am opposed to this rezoning request. A few of these reasons include: the increased traffic that will likely occur on Chelsea, Windsor, and Salem. Increased traffic leads to an increase of noise in the neighborhood. It will also lead to the increased chance of car accidents whether with another car or a pedestrian. It also increases the likelihood of litter in the neighborhood from the extra traffic. Some examples of this litter would be cigarette butts, fast food wrappers/containers, and plastic cups.

Concerning the restaurant itself, it's my understanding this will be a drive thru restaurant open late at night. Restaurants open late at night attract intoxicated customers resulting in more safety and noise concerns. Not to mention the added noise of a loud speaker to order food through the drive thru. Litter in fast food parking lots is also quite common creating an eye sore in the neighborhood.

A final concern where does this end? Are other homes attempted to be purchased in the neighborhood and expanded rezoning requests in the future from this company? If this rezoning request is approved the home values of this neighborhood will decrease! This nice and quiet neighborhood does not need a restaurant/parking lot ruining it!

Sincerely,  
Andy Smith  
Sent from my iPhone

**Eric Feldt**

---

**From:** paulgoldenbeld@aol.com  
**Sent:** Thursday, December 7, 2023 5:01 PM  
**To:** Eric Feldt  
**Subject:** Rezoning application no 23/24-2

**CAUTION: THIS EMAIL IS FROM AN EXTERNAL SENDER**

Do not click on links or open attachments unless this is from a sender you know and trust.

**To:** City of Portage

Dept of Community Development

7900 S. Westnedge Avenue

Portage ,MI 49002

**Attn:** Mr. Eric Feldt, Senior City Planner

Planning Commission Members

**Subject:** Rezoning application no 23/24-2

6008, 6018 Chelsea Lane

**From:** Paul A. Goldenbeld (wife Astrid and daughter Vivian)

Property owner and resident of: - 207 E. Milham Ave

- 219 E. Milham Ave

Dear Mr Feldt,

After studying the proposed rezoning plan and related public documentation, I want to express my concern about this plan, and even more so, my objection to the type of business that is considered to occupy the rezoned area.

## **Introduction**

My wife and I moved in 2017 from Oshtemo to Portage. We, both approaching now 70 yrs. and retired, wanted to live closer to town and have easy access to businesses that we value at our age (Pharmacy, Doctor, Vision, Dental, Urgent care, Groceries, occasionally Restaurant and public transportation). We like the area; zoned as residential, it is safe and remarkably quiet (outside rush hr.), walkable, green (with large mature trees) and great neighbors/residents

## **Requested issues to be taken in consideration**

(Note: 207 E. Milham faces directly the proposed rezoning area, and 219 from the S. East)

### **Traffic**

- An exit/entrance to this drive-thru from an exit lane (S. Westnedge to E Milham) can easily create a traffic back-up problem. Exiting the property to go north from the exit lane to the strait north or west lane might even be impossible. Recent examples are well known: *Chick-A-File* (back-up on Westnedge & parking, *Panda Express* back-up on Westnedge
- A secondary exit on E. Milham, as pictured in the proposed plan, is similarly of concern. E. Milham at that point is a seven (7) lane street, with heavy traffic backed up at the traffic light. Going west on E. Milham (and turn right at the light on Westnedge might be very difficult.

(Note: E. Milham traffic has considerably increased in the last 5 years)

### **Environmental**

- Noise: The proposed drive-thru will add car noise, communication noise (orders), Industrial kitchen fans and AC noise. Delivery/garbage truck noise
- Lights(1): Street/parking lights, decorative and sign lights on the structure/premises
- Lights(2): The head lights of the cars of the customers visiting the drive through will shine straight in the living/bed rooms windows of the residences in close proximity. With most these restaurants open till late at night, this a serious concern.
- Pollution: While many drive thru restaurants try to keep their parking and surrounding area clean, not all customers have the same idea. With the help and the wind/rain these businesses always will cause more litter

The nature of a drive thru is that people stay in their "running" car for the entrance/order/payment/delivery/exit process, which can take on average 10-12 minutes. (sometimes even staying in a running car to consume their purchase). All together these cars might produce more CO<sub>2</sub> than 4 cars running stationary 24/7 year around.



- **Odor:** No matter what, Restaurants produce a smell that might be nice for a short time but not every day. Depending on the wind direction this could be bothersome to the residents in close proximity. *(Note) A good example is the strong odor produced by Skinny Kenny BBQ Restaurant at the Westnedge side of the proposed development*

### **Safety:**

- Parking lots of fast food and drive thru restaurants seem to be the preferred hangout places, providing young adults opportunities to share their tuned/modified motorcycles and cars in addition to general meetings (?), illegal overnight stays, and as a buy/sell location. *(Note) Again a good example is the north-east corner of the Burger King parking lot on Westnedge, as well as the back (drive thru lot) of Walgreen. The proximity to the Motel/Lodging facility in the SW corner of I-94 and Westnedge is also of concern.*

### **Esthetics:**

- Many residents of this neighborhood have lived here for decades and want to keep the integrity of the residential zoning in place. Many also believe that this is a first step into further developing the neighborhood and E&W Milham into a commercial corridor.
- Looking from your home to a wall, parking lot, cars in a drive thru restaurant, or, in comparison, the nice green yards, trees, flowers of a neighbor is very different

## **Conclusion**

### **My properties**

- The effect on my properties will be substantial
- Traffic, Nightly lights, Safety issues, and environmental factors will have a significant impact on the value of 207 E. Milham and 219 E. Milham
- (207 E. Milham facing directly the rezoning area) Getting out of my driveway is already a suicide mission, increased traffic, parking and commercial enterprise developments will only exacerbate that situation. Many (older) friends, but also children and grandchildren, are reluctant to stop by given the driveway access/exit to E. Milham (I have asked the city many times for a sign "DON'T BLOCK THE DRIVEWAY" for the residents close to the traffic light)- 207 will not appeal to any prospector buyer or maybe at 50% of its current value.

### **Neighborhood:**

- It will change substantially the characteristics of the "safe, quiet, green" neighborhood

- We all understand the commercial interest of MC Weiner to develop the land on the corner of Westnedge and Milham. However, if 95% of the effected residents are objecting the current plans, the City of Portage should seriously consider their complaints and reconsider the current plan.

- The properties closest to the rezoning area will be hit with a serious reduction of the value of their home and quality of living experience. It is not fair for the residents who have paid multiple years into the mortgage on their property and wipe that out to the benefit of MC Weiner and Raising Cane Restaurant. Justice is not served by embracing the plan of two businesses against 30 concerned residents.

- **Long term planning**

- Many cities in the US but also around the world have included in their planning adequate parking at the periphery areas in order to reduce car congestion. Upgrading heavy traffic areas with additional bike lanes and pedestrian access, considering a reliable city bus/transport system. We have to think (and make decision accordingly) on where we want to be as a city in 20-30 yrs. from now. What legacy do we leave for the next generation. More drive thru, more cars, more fast food, or greener walkable, recreative areas (*Note: We have a wonderful park at E.Milham, just wish I could walk/bike there*)

- The cities logo is: PORTAGE "a Natural Place to Move" Lets honor that logo, it doesn't say PORTAGE "Great to Move your Business" or "Business Above All "let's make it PORTAGE "Great for Business....Great to Live, and keep a good balance between the two. Together we can make fantastic Portage even better.

Sincerely,  
Paul A. Goldenbeld

## Eric Feldt

---

**From:** Kevin K. Strand <STRANDK@bronsonhg.org>  
**Sent:** Saturday, December 9, 2023 4:58 AM  
**To:** Eric Feldt  
**Cc:** kidzpca@msn.com  
**Subject:** Rezoning no. 23/24-2 6008 and 6018 Chelsea Lane

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

### CAUTION: THIS EMAIL IS FROM AN EXTERNAL SENDER

Do not click on links or open attachments unless this is from a sender you know and trust.

I watched the meeting from December 7<sup>th</sup> and now that I have a clear picture as to what is actually planned. Yes, I signed the petition that was going around by my neighbors but have since changed my mind. As to the rezoning of the above properties located at 6008 and 6018 Chelsea Lane I would like to say. I have no objection to rezoning and redevelopment of the corner. The corner as it is a great safety concern if allowed to continue to stay as is. A Raising Cane's is an appropriate fit for the area. As To crime brought up by my neighbors, I am more concerned about crime brought to the area by Hoffmans Liquor than a Chicken fast food restaurant. My concern as this occurs is that the development actually improve the entrance/exit along South Westnedge and East Milham as it is extremely unsafe as it is now being a high traffic area both by vehicular traffic and pedestrians alike. Also that an appropriate barrier along Chelsea so that the street stays safe and retains privacy and potential noise traffic for the nearby residents.

I know redevelopment of the forementioned property has been in discussion for at least 26 years that I have lived in the neighborhood. Currently the homes are not in the best of shape and devalue the area more than if Raising Cane's is built there. Regardless of other residents the improvement is overdue and needs to be done. Also please be aware that someone in the neighborhood is currently trying to make the area a historic neighborhood. They think that this will stop the redevelopment. I feel regardless the redevelopment is in dire need and inevitable. I believe my neighbors are also fearful of losing their homes or being devalued with less than fair market value for the homes they reside.

Thank you for your time and due diligence to this ongoing matter.

Kevin Strand  
317 Windsor Lane  
Portage, MI 49002  
(269) 929-7788  
kidzpca@msn.com

If this is a multiple copy sent to you my computer at work by default dropped the L in the email address. Sorry about that.

---

This message may contain confidential information protected by law through attorney-client privilege or professional peer review/quality evaluation privilege. It is intended only for the individual or entity named above. It is prohibited for anyone else to disclose copy, distribute, or use the contents of this message. If you are not the intended recipient, please contact the sender by reply e-mail and destroy all copies of the original message. You may also contact the Bronson Healthcare



To Whom it May Concern,

I am writing to express my strong opposition to the proposed rezoning at the northwest quadrant of Chelsea Lane and Milham, Parcel numbers 0274-010-O and 02740-011-O. To my knowledge, other than the non-resident, corporate property owner, all of the residents of the Glenbrook Village neighborhood are completely opposed to any commercial rezoning.

Glenbrook Village is a little oasis that provides the convenience of living close to the abundance of retail and restaurant options Portage has to offer while providing the illusion of living in a rural small town. Even without the formality of a Historic District status, the community maintains the same cohesive look and feel as it had when it was originally built.

The proposal to rezone two properties in our community to make way for a restaurant and parking lot (or any other business that intrudes upon our plat) will spoil that illusion, increase traffic through the neighborhood, increase light and noise pollution and in every way have a negative impact on the property values, both real and perceived, of the many taxpayers that purchased homes in this community. I personally don't see any reason the city should permit a single entity to profit on the property value losses of others.

Traffic and the safety of pedestrians are major areas of concern. As has been evidenced by the continued back-ups at the Chick-fil-A and the horrendous traffic jams when the Panda Express was put in, there is no question that traffic will be an issue.

Per the proposal I understand traffic would only be able to exit the property onto Milham Ave. It is already nearly impossible to turn west onto Milham Ave during 'rush hour', which causes most residents within Glenbrook to utilize Salem Lane. The expected increase in traffic will most certainly cause people unable to turn west onto Milham to instead utilize our little community as a turnabout, drastically increasing traffic and litter throughout the neighborhood.

If the properties are rezoned and commercial businesses are allowed to encroach into our neighborhood, the amount of noise and light pollution is will increase drastically. Noise from both an increase of vehicles as well as any drive-through speakers squawking late into the night will contribute to diminish property values as well as quality of life for the area residents. That's not even considering the likely increase of odors and vermin I anticipate would permeate the area if a restaurant is built.

There are quite a number of empty commercial properties within Portage, so there is no reason to convert residential properties due to the lack of other options. On the flip side, there is currently a shortage of residential homes available for sale or rent. It seems quite illogical to arbitrarily reduce that inventory further.

There is nothing about rezoning these two properties that would even remotely be considered a positive outcome for the surrounding neighbors, who purchased their homes in a residential neighborhood with the expectation that the surrounding property would remain residential.

I realize this letter is too late for the Dec 7<sup>th</sup> Planning Commission meeting. I hope it is in time to be considered in any future meetings regarding the rezoning request. I strongly urge you to disapprove the proposed rezoning, and from recent meetings and discussions with my neighbors, I know my opinions are shared by many who have not managed to attend meeting or write letters and emails.

Thank you for your continued service and support of our community.

Best regards,

Brenda Snyder  
310 Windsor Ln  
260-330-9886



# **CITY OF PORTAGE PLANNING COMMISSION**

**Thursday, December 07, 2023  
7:00 PM Portage  
Portage City Hall Council Chamber**

The City of Portage Planning Commission meeting of December 07, 2023, was called to order by Chair Corradini at 7:00 p.m.

## **IN ATTENDANCE**

- Catherine Kaufman, City Attorney
- Eric Feldt, Senior City Planner
- Biqi Zhao, Deputy Director of Planning and Zoning
- Peter J. Dame, Chief Development Officer

## **ROLL CALL**

Mr. Feldt called the roll: Chairman Corradini (yes); Vice Chair Baldwin (yes); Adams (yes); Pezzoli (yes); Joshi (yes); Fries (yes); Youngs (yes); Freiman (yes); and Kasper (resigned).

8 - Present.

## **APPROVAL OF MINUTES**

1. Minutes dated November 16, 2023.

Motion by Commissioner Pezzoli, seconded by Commissioner Fries to approve the November 16, 2023, meeting minutes, as submitted. Motion carried 8-0.

## **PUBLIC HEARINGS**

1. **Rezoning application No. 23/24-2 to rezone 6008 and 6018 Chelsea Lane from R-1A One Family Residential to B-3 General Business District and P-1 Vehicular Parking to facilitate a future commercial development.**

Chair Corradini introduced the project.

Mr. Feldt provided a PowerPoint presentation addressing the applicant's proposed rezone, describing the overall neighborhood, showed various pictures of the site and neighborhood, showed the existing zoning map, described the 2014 Comprehensive Plan Future Land Use Map classification of the neighborhood, and presented staff analysis. He indicated that staff supports rezoning 6008 Chelsea Lane, but not rezoning the entire area of 6018 Chelsea Lane due to inconsistency with the Comprehensive Plan and possible resulting negative impacts to existing residences. Mr. Feldt also presented staff primary recommendation and a secondary alternative, for the Commission's consideration that would be more consistent with the Comprehensive Plan and lessen impacts to residences than the original rezone request. Mr. Feldt stated that staff received several letters of public comments and a neighborhood petition opposing the applicant's rezone. He summarized their concerns including various possible negative impacts to the neighborhood such as increased commercial impact from noise and headlights, traffic and a decrease in property value and neighborhood aesthetics. Mr. Feldt's presentation concluded with listing three rezone options for the Commission's consideration: 1) applicant's rezone proposal, 2) staff's primary rezone alternative, and 3) a secondary rezone alternative.

The Commission asked various questions to Mr. Feldt including other possible rezone alternatives, impacts to public safety, impacts to property value, other similar rezone and redevelopments along

adjacent streets, commercial parking abutting residences, buffering between future commercial and existing residences, and buildable area from staff's secondary rezone alternative.

Mr. Feldt's responses are summarized as follows:

He indicated that no additional rezone alternatives were discussed in detail by staff beyond the alternatives presented. Public safety will not decrease with the rezone proposal because future development proposals for the site will be reviewed to ensure consistency with the City's general access management, traffic and parking requirements, parking lot lighting for greater visibility, and required buffers to adjacent residences. The City of Portage Police Department will continue to provide policing operations. If the rezone is approved and a development is proposed, future landscaping will be required along the streets. Under the P-1 standards, a future parking lot shall have 25' feet setback and buffered from abutting any residences. All parking and building size and location requirements shall comply with the B-3 and P-1 standards. The resulting open space in staff's primary alternative would result in a buildable R-1A lot.

Chair Corradini asked for the applicant to present.

Joshua Weiner, applicant (same as owner), CEO of MC Weiner Company and manager of Westnedge Milham LLC. was joined by his team and consultants (Cavalier Development) of Raising Cane's Chicken Fingers restaurant. He stated that his team has been working on finding a new tenant to help redevelop the subject residential lots and his adjacent commercial properties at the intersection which have been deteriorating. Mr. Weiner stated that the rezone would allow a concept Raising Cane's project at the subject lots and adjacent commercial corner lots. It will improve traffic circulation, aesthetics of the very busy and prominent intersection. He stated that his team had proactively provided a traffic study for this concept project which did not indicate any resulting negative impact and would not result in vehicles turning into the Chelsea Lane neighborhood. Also, his team held a neighborhood meeting to inform the adjacent owners of the proposed rezone and concept project. Mr. Weiner indicated that his team supports the secondary alternative rezone as it facilitates future redevelopment of the southern adjacent commercial lots. In addition, he indicated that if the rezone is approved, his team would provide a future neighborhood meeting to inform the owners of the details of the site plan for Raising Cane's restaurant project.

Commissioners asked the applicant questions.

Pezzoli, Joshi, and Fries confirmed that the applicant supports the secondary rezone alternative. The applicant indicated yes.

Adams asked about parking requirement for the future Raising Cane's restaurant.

Mr. Wiener indicated that the future site plan would be designed with the right amount of parking and incorporate green space and setback space.

Rick Williamson, 2626 Coal Ave. No. 356 Dallas, TX, with Cavalier Development as a project developer and consultant to Raising Canes Chicken Fingers restaurant. He explained Raising Canes business's history, locations in Michigan, and then described the concept proposal submitted with the proposed rezone. He supports the proposed split zoning of the B-3 and P-1 districts because it facilitates the concept development.

Commissioner Joshi asked Mr. Williamson about noise pollution impacting adjacent residences from the concept restaurant.

Mr. Williamson indicated that the drive-thru speakers can be set at a lower volume, and generally he stated that other Raising Canes operate adjacent to residences without noise issues.

Chair Corradini opened the Public Hearing.

1. Paul Goldenbeld; 207, 219 E. Milham Avenue. He opposed the project based on the following perceived concerns: impacts from future car lights, noise from future cars in drive-thru, lights from future business and signage, pollution from carbon dioxide from future cars, possible increase in crime, possible negative impacts to the neighborhood's aesthetics, and possible decrease in property value.
2. Dennis Kosenke, 216 Windsor Lane. He opposed the project based on the following perceived concerns: possible decrease in property value and taxes, possible resulting of residences leaving the neighborhood due to commercial encroachment, and possible negative impact to the overall neighborhood.

Commissioner Fries motioned, supported by Joshi to close the public hearing. Motion carried 8-0.

Commissioner Adams expressed concerns about the high amount of parking shown in the conceptual development plan.

Commissioner Fries indicated support for the proposed rezone to facilitate future redevelopment, increase walkability, and provide an overall community benefit.

Secretary Freiman stated his support of the rezoning and was glad to hear that the applicant would provide a subsequent neighborhood meeting.

Commissioner Joshi indicated support of the rezone. In response to a public hearing comment, she stated that her vote was not finalized prior to the meeting. Reading the public comments and listening to the public hearing was considered in her vote.

Chair Corradini stated that the Planning Commission's action is only a recommendation to City Council where additional public hearing will be provided. He indicated his support for the rezone.

Commissioner Adams confirmed that the proposed rezone results in taking a residential lot fully enclosed within a residential neighborhood for a future parking lot.

Commissioner Fries motioned, supported by Commissioner Pezzoli to recommend rezoning No. 23/24-2 to rezone 6008 and 6018 Chelsea Lane from R-1A One Family Residential to B-3 General Business district and P-1 Vehicular; and P-1 for the southern 65 feet portion of 6018 Chelsea Lane to facilitate future commercial development. Chair Corradini asked for vote: Chairman Corradini (yes); Vice Chair Baldwin (yes); Secretary Freiman (yes); Joshi (yes); Pezzoli (yes); Fries (yes); Youngs (no); Adams (no). Motion carried 6-2.

#### **SITE/FINAL PLANS**

None.

#### **OLD BUSINESS**

None.

#### **STATEMENT OF CITIZENS**

None.

**NEW BUSINESS**

None.

**STATEMENT OF COMMISSIONERS/ STAFF**

Mr. Feldt informed the Commission that the upcoming Planning Commission meeting on December 21<sup>st</sup> has been cancelled.

He also stated that Commissioner Kasper has resigned from the Planning Commission for work/ life balance needs.

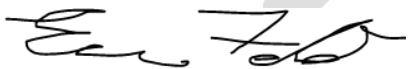
And lastly Mr. Feldt stated that the Council approved the Accessory Dwelling Unit ordinance on Tuesday, December 5<sup>th</sup> which will become effective later in December.

Commissioner Youngs indicated that he will be absent for January 4<sup>th</sup> and 18<sup>th</sup>, and February 1<sup>st</sup> Planning Commission meetings.

**ADJOURNMENT**

There being no further business to come before the Commission, Chair Corradini adjourned the meeting at 8:45 p.m.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Eric Feldt".

Eric Feldt, AICP, CFM  
Senior City Planner



## Department of Community Development

**TO:** Honorable Mayor and City Council  
**FROM:** City of Portage Planning Commission  
**DATE:** December 27, 2023

**SUBJECT:** Rezoning Application # 23/24-2 to rezone 6008 and 6018 Chelsea Lane from R-1A One-Family Residential to B-3 General Business District and P-1 Vehicular Parking to facilitate a future commercial development.

At the December 7, 2023 meeting, the Planning Commission reviewed and discussed the Rezoning Application # 23/24-2 to rezone 6008 and 6018 Chelsea Lane from R-1A One-Family Residential to B-3 General Business District and P-1 Vehicular Parking to facilitate a future commercial development. The applicant, Joshua T. Weiner and his team, MC Weiner Company, LLC and the consultant, Rick Williamson, Cavalier Development presented to discuss the rezoning and future use of the site. Mr. Weiner stated that his team support the secondary alternative rather than the primary recommendation of staff or the original rezoning proposal in the application. The secondary alternative is to rezone 6008 and 6018 Chelsea Lane from R-1A to B-3 and P-1, excluding the southern 65 feet area of 6018 Chelsea Lane which would be rezoned to P-1 (see the attached secondary alternative rezone map). The MC Weiner development team also indicated they will hold a neighborhood meeting for the site plan if the rezoning is approved. Two members of the public provided in-person testimony and expressed opposition to the project due to perceived concerns about the impacts from future car lights, noise from future cars in drive-thru, the impacts on traffic, property value, encroachment to neighborhood, and possible negative impacts on the overall neighborhood. A petition from the adjacent neighborhood at several letters opposing the rezoning were also received in writing. The Planning Commission determined no further discussion was needed and voted to close the public hearing.

After careful consideration, the Planning Commission voted 6-2 to recommend to City Council the approval of the rezoning application # 23/24-2 the secondary alternative to rezone 6008 and 6018 Chelsea Lane from R-1A to B-3 and P-1, excluding the southern 65 feet area of 6018 Chelsea Lane which would be rezoned to P-1 for future commercial development.

Sincerely,

CITY OF PORTAGE PLANNING COMMISSION

Dan Corradini  
Chairman

Attachments: December 7, 2023, Planning Commission meeting minutes  
Original rezone request  
Primary staff recommendation rezone map  
Secondary alternative rezone map



**AN ORDINANCE TO AMEND THE CODE OF ORDINANCES OF THE CITY OF  
PORTAGE, MICHIGAN BY AMENDING ARTICLE 4 OF CHAPTER 42,  
LAND DEVELOPMENT REGULATIONS OF THE CODIFIED ORDINANCES  
OF PORTAGE, MICHIGAN**

**THE CITY OF PORTAGE ORDAINS:**

That Article 4 (Zoning) of Chapter 42, of the Codified Ordinances of Portage, Michigan, Official Zoning Map, be amended as follows:

| <u>Street Address</u> | <u>Parcel ID Numbers</u> | <u>Tax Description</u>             |
|-----------------------|--------------------------|------------------------------------|
| 6008 Chelsea Lane     | 02740-010-O              | GLENBROOK VILLAGE LOT 10 BLK 1     |
| 6018 Chelsea Lane     | 02740-011-O              | GLENBROOK VILLAGE LOTS 11-12 BLK 1 |

From One-Family Residential (R-1A) District to General Business District (B-3) and Vehicular Parking District (P-1).

**PROPOSED B-3 DISTRICT MORE PARTICULARLY DESCRIBED AS FOLLOWS:**

PART OF LOTS 10, 11 AND 12, BLOCK 1, OF GLENBROOK VILLAGE SECTION 10, T. 3 S., R. 11 W. TOWNSHIP OF PORTAGE, COUNTY OF KALAMAZOO, MICHIGAN, ACCORDING TO THE PLAT THEREOF AS RECORDED IN LIBER 16 OF PLATS, PAGE 32, KALAMAZOO COUNTY RECORDS, MORE PARTICULARLY DESCRIBED AS: BEGINNING AT THE NORTHWEST CORNER OF LOT 10, BLOCK 1 SAID POINT BEING ON THE SOUTH LINE OF E. MILHAM AVENUE (33 FEET 1/2 WIDTH); THENCE ALONG SAID SOUTH LINE OF E. MILHAM AVENUE, SAID LINE BEING ALSO PART OF THE NORTH LINE OF SAID LOT 10, SOUTH 89 DEGREES 51 MINUTES 00 SECONDS EAST 66.10 FEET; THENCE SOUTH 00 DEGREES 09 MINUTES 06 SECONDS WEST 155.00 FEET; THENCE NORTH 89 DEGREES 51 MINUTES 00 SECONDS WEST 65.69 FEET TO A POINT ON THE WEST LINE OF SAID LOT 12, BLOCK 1; THENCE ALONG THE WEST LINE OF SAID LOT AND THE WEST LINE OF SAID LOTS 11 AND 10, BLOCK 1, NORTH 00 DEGREES 00 MINUTES 00 SECONDS EAST 155.00 FEET TO THE POINT OF BEGINNING.

**PROPOSED P-1 DISTRICT MORE PARTICULARLY DESCRIBED AS FOLLOWS:**

PART OF LOTS 10, 11 AND 12, BLOCK 1, OF GLENBROOK VILLAGE SECTION 10, T. 3 S., R. 11 W., TOWNSHIP OF PORTAGE, COUNTY OF KALAMAZOO, MICHIGAN, ACCORDING TO THE PLAT THEREOF AS RECORDED IN LIBER 16 OF PLATS, PAGE 32, KALAMAZOO COUNTY RECORDS, MORE PARTICULARLY DESCRIBED AS: COMMENCING AT THE NORTHWEST CORNER OF LOT 10, BLOCK 1, SAID POINT BEING ON THE SOUTH LINE OF E. MILHAM AVENUE (33 FEET 1/2 WIDTH); THENCE ALONG SAID SOUTH LINE OF E. MILHAM AVENUE, SAID LINE BEING ALSO PART OF THE NORTH LINE OF SAID LOT 10, SOUTH 89 DEGREES 51 MINUTES 00 SECONDS EAST 66.10 FEET TO THE POINT OF BEGINNING; THENCE CONTINUING ALONG SAID SOUTH LINE OF E. MILHAM AVENUE, SAID LINE BEING ALSO PART OF THE NORTH LINE OF SAID LOT 10, SOUTH 89 DEGREES 51 MINUTES 00 SECONDS EAST 58.90 FEET; THENCE 62.86 FEET ALONG THE ARC OF A CURVE CONNECTING THE SOUTH LINE OF SAID E. MILHAM AVENUE WITH THE WEST LINE OF CHELSEA LANE (66 FEET WIDE), CONCAVE TO THE SOUTHWEST, RADIUS 40.10 FEET, CHORD BEARING SOUTH 44 DEGREES 56 MINUTES 32 SECONDS EAST 56.62 FEET TO A POINT ON THE WEST LINE OF CHELSEA LANE, SAID POINT BEING ALSO ON THE EAST LINE OF SAID LOT 10; THENCE ALONG SAID WEST LINE OF CHELSEA LANE, SAID LINE BEING ALSO THE EAST LINE OF SAID LOT 10, 11 AND 12 SOUTH 00 DEGREES 00 MINUTES 00 SECONDS WEST 180.00 FEET TO THE SOUTHEAST CORNER OF SAID LOT 12; THENCE ALONG THE SOUTH LINE OF SAID LOT, NORTH 89 DEGREES 51 MINUTES 00

SECONDS WEST 165.00 FEET TO THE SOUTHWEST CORNER OF SAID LOT 12; THENCE  
ALONG PART OF THE WEST LINE OF SAID LOT 12, NORTH 00 DEGREES 00 MINUTES 00  
SECONDS EAST 65.00 FEET; THENCE SOUTH 89 DEGREES 51 MINUTES 00 SECONDS  
EAST 65.69 FEET; THENCE NORTH 00 DEGREES 09 MINUTES 06 SECONDS EAST 155.00  
FEET TO THE POINT OF BEGINNING.

FIRST READING:

SECOND READING:

EFFECTIVE DATE:

\_\_\_\_\_  
Patricia M. Randall, Mayor

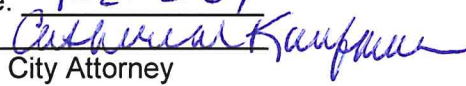
STATE OF MICHIGAN       )  
                                      ) SS  
COUNTY OF KALAMAZOO )

I do hereby certify that I am the duly appointed and acting City Clerk of the City of Portage  
and that the foregoing Ordinance was adopted by the City of Portage on the \_\_\_\_\_ day of  
\_\_\_\_\_, 2024.

\_\_\_\_\_  
Erica Eklov, City Clerk

Approved as to Form:

Date: 1-2-2024

By:   
City Attorney

**ADOPTION OF ZONING ORDINANCE  
CITY OF PORTAGE, MICHIGAN  
NOTICE**

**TO: THE RESIDENTS AND PROPERTY OWNERS OF THE CITY OF PORTAGE AND ALL OTHER INTERESTED PERSONS.**

NOTICE IS HEREBY GIVEN, that an Ordinance to amend Article 4 (Zoning) of Chapter 42 of the Codified Ordinances of Portage, Michigan, was adopted by the City Council at a regular meeting held on the \_\_\_\_\_ day of \_\_\_\_\_, 2024, and will become effective \_\_\_\_\_, 2024.

NOTICE IS FURTHER GIVEN that Article 4 (Zoning) of Chapter 42, Land Development Regulations, of the Codified Ordinance of Portage, Michigan, has been amended as follows:

THE CITY OF PORTAGE ORDAINS:

That Article 4 (Zoning) of Chapter 42, of the Codified Ordinances of Portage, Michigan, Official Zoning Map, be amended as follows:

| <u>Street Address</u> | <u>Parcel ID Numbers</u> | <u>Tax Description</u>             |
|-----------------------|--------------------------|------------------------------------|
| 6008 Chelsea Lane     | 02740-010-O              | GLENBROOK VILLAGE LOT 10 BLK 1     |
| 6018 Chelsea Lane     | 02740-011-O              | GLENBROOK VILLAGE LOTS 11-12 BLK 1 |

From One-Family Residential (R-1A) District to General Business District (B-3) and Vehicular Parking District (P-1).

PROPOSED B-3 DISTRICT MORE PARTICULARLY DESCRIBED AS FOLLOWS:

PART OF LOTS 10, 11 AND 12, BLOCK 1, OF GLENBROOK VILLAGE SECTION 10, T. 3 S., R. 11 W. TOWNSHIP OF PORTAGE, COUNTY OF KALAMAZOO, MICHIGAN, ACCORDING TO THE PLAT THEREOF AS RECORDED IN LIBER 16 OF PLATS, PAGE 32, KALAMAZOO COUNTY RECORDS, MORE PARTICULARLY DESCRIBED AS: BEGINNING AT THE NORTHWEST CORNER OF LOT 10, BLOCK 1 SAID POINT BEING ON THE SOUTH LINE OF E. MILHAM AVENUE (33 FEET 1/2 WIDTH); THENCE ALONG SAID SOUTH LINE OF E. MILHAM AVENUE, SAID LINE BEING ALSO PART OF THE NORTH LINE OF SAID LOT 10, SOUTH 89 DEGREES 51 MINUTES 00 SECONDS EAST 66.10 FEET; THENCE SOUTH 00 DEGREES 09 MINUTES 06 SECONDS WEST 155.00 FEET; THENCE NORTH 89 DEGREES 51 MINUTES 00 SECONDS WEST 65.69 FEET TO A POINT ON THE WEST LINE OF SAID LOT 12, BLOCK 1; THENCE ALONG THE WEST LINE OF SAID LOT AND THE WEST LINE OF SAID LOTS 11 AND 10, BLOCK 1, NORTH 00 DEGREES 00 MINUTES 00 SECONDS EAST 155.00 FEET TO THE POINT OF BEGINNING.

PROPOSED P-1 DISTRICT MORE PARTICULARLY DESCRIBED AS FOLLOWS:

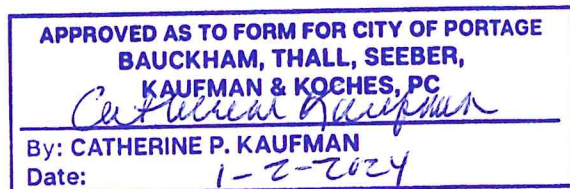
PART OF LOTS 10, 11 AND 12, BLOCK 1, OF GLENBROOK VILLAGE SECTION 10, T. 3 S., R. 11 W., TOWNSHIP OF PORTAGE, COUNTY OF KALAMAZOO, MICHIGAN, ACCORDING TO THE PLAT THEREOF AS RECORDED IN LIBER 16 OF PLATS, PAGE 32, KALAMAZOO COUNTY RECORDS, MORE PARTICULARLY DESCRIBED AS: COMMENCING AT THE NORTHWEST CORNER OF LOT 10, BLOCK 1, SAID POINT BEING ON THE SOUTH LINE OF E. MILHAM AVENUE (33 FEET 1/2 WIDTH); THENCE ALONG SAID SOUTH LINE OF E. MILHAM AVENUE, SAID LINE BEING ALSO PART OF THE NORTH LINE OF SAID LOT 10, SOUTH 89 DEGREES 51 MINUTES 00 SECONDS EAST 66.10 FEET TO THE POINT OF BEGINNING; THENCE CONTINUING ALONG SAID SOUTH LINE OF E. MILHAM AVENUE,

SAID LINE BEING ALSO PART OF THE NORTH LINE OF SAID LOT 10, SOUTH 89 DEGREES 51 MINUTES 00 SECONDS EAST 58.90 FEET; THENCE 62.86 FEET ALONG THE ARC OF A CURVE CONNECTING THE SOUTH LINE OF SAID E. MILHAM AVENUE WITH THE WEST LINE OF CHELSEA LANE (66 FEET WIDE), CONCAVE TO THE SOUTHWEST, RADIUS 40.10 FEET, CHORD BEARING SOUTH 44 DEGREES 56 MINUTES 32 SECONDS EAST 56.62 FEET TO A POINT ON THE WEST LINE OF CHELSEA LANE, SAID POINT BEING ALSO ON THE EAST LINE OF SAID LOT 10; THENCE ALONG SAID WEST LINE OF CHELSEA LANE, SAID LINE BEING ALSO THE EAST LINE OF SAID LOT 10, 11 AND 12 SOUTH 00 DEGREES 00 MINUTES 00 SECONDS WEST 180.00 FEET TO THE SOUTHEAST CORNER OF SAID LOT 12; THENCE ALONG THE SOUTH LINE OF SAID LOT, NORTH 89 DEGREES 51 MINUTES 00 SECONDS WEST 165.00 FEET TO THE SOUTHWEST CORNER OF SAID LOT 12; THENCE ALONG PART OF THE WEST LINE OF SAID LOT 12, NORTH 00 DEGREES 00 MINUTES 00 SECONDS EAST 65.00 FEET; THENCE SOUTH 89 DEGREES 51 MINUTES 00 SECONDS EAST 65.69 FEET; THENCE NORTH 00 DEGREES 09 MINUTES 06 SECONDS EAST 155.00 FEET TO THE POINT OF BEGINNING.

PLEASE TAKE NOTICE that a copy of the Ordinance as amended may be purchased or inspected at City Hall on any business day except public and legal holidays from and after publication of this Notice from 8:00 a.m. to 5:00 p.m. local time. Further, a copy of a map showing the property rezoned is also available at the time and days noted above.

Dated: \_\_\_\_\_

\_\_\_\_\_  
Erica Eklov, City Clerk



**FIRST READING  
CITY OF PORTAGE, MICHIGAN  
NOTICE**

**TO: THE RESIDENTS AND PROPERTY OWNERS OF THE CITY OF PORTAGE AND ALL OTHER INTERESTED PERSONS.**

NOTICE IS HEREBY GIVEN, that an Ordinance to amend Article 4 (Zoning) of Chapter 42 of the Codified Ordinances of Portage, Michigan, was introduced for first reading at a regular meeting of the City Council held on \_\_\_\_\_, 2024, and that the Council will hold a public hearing on the proposed amendment at the Portage City Hall in said City on \_\_\_\_\_, 2024, at 7:00 p.m. or as soon thereafter as may be heard.

NOTICE IS FURTHER GIVEN that the proposed amendment to Article 4 (Zoning) of Chapter 42, of the Codified Ordinances of Portage, Michigan reads as follows:

THE CITY OF PORTAGE ORDAINS:

That Article 4 (Zoning) of Chapter 42, of the Codified Ordinances of Portage, Michigan, Official Zoning Map, be amended as follows:

| <u>Street Address</u> | <u>Parcel ID Numbers</u> | <u>Tax Description</u>             |
|-----------------------|--------------------------|------------------------------------|
| 6008 Chelsea Lane     | 02740-010-O              | GLENBROOK VILLAGE LOT 10 BLK 1     |
| 6018 Chelsea Lane     | 02740-011-O              | GLENBROOK VILLAGE LOTS 11-12 BLK 1 |

From One-Family Residential (R-1A) District to General Business District (B-3) and Vehicular Parking District (P-1).

PROPOSED B-3 DISTRICT MORE PARTICULARLY DESCRIBED AS FOLLOWS:

PART OF LOTS 10, 11 AND 12, BLOCK 1, OF GLENBROOK VILLAGE SECTION 10, T. 3 S., R. 11 W. TOWNSHIP OF PORTAGE, COUNTY OF KALAMAZOO, MICHIGAN, ACCORDING TO THE PLAT THEREOF AS RECORDED IN LIBER 16 OF PLATS, PAGE 32, KALAMAZOO COUNTY RECORDS, MORE PARTICULARLY DESCRIBED AS: BEGINNING AT THE NORTHWEST CORNER OF LOT 10, BLOCK 1 SAID POINT BEING ON THE SOUTH LINE OF E. MILHAM AVENUE (33 FEET 1/2 WIDTH); THENCE ALONG SAID SOUTH LINE OF E. MILHAM AVENUE, SAID LINE BEING ALSO PART OF THE NORTH LINE OF SAID LOT 10, SOUTH 89 DEGREES 51 MINUTES 00 SECONDS EAST 66.10 FEET; THENCE SOUTH 00 DEGREES 09 MINUTES 06 SECONDS WEST 155.00 FEET; THENCE NORTH 89 DEGREES 51 MINUTES 00 SECONDS WEST 65.69 FEET TO A POINT ON THE WEST LINE OF SAID LOT 12, BLOCK 1; THENCE ALONG THE WEST LINE OF SAID LOT AND THE WEST LINE OF SAID LOTS 11 AND 10, BLOCK 1, NORTH 00 DEGREES 00 MINUTES 00 SECONDS EAST 155.00 FEET TO THE POINT OF BEGINNING.

PROPOSED P-1 DISTRICT MORE PARTICULARLY DESCRIBED AS FOLLOWS:

PART OF LOTS 10, 11 AND 12, BLOCK 1, OF GLENBROOK VILLAGE SECTION 10, T. 3 S., R. 11 W., TOWNSHIP OF PORTAGE, COUNTY OF KALAMAZOO, MICHIGAN, ACCORDING TO THE PLAT THEREOF AS RECORDED IN LIBER 16 OF PLATS, PAGE 32, KALAMAZOO COUNTY RECORDS, MORE PARTICULARLY DESCRIBED AS: COMMENCING AT THE NORTHWEST CORNER OF LOT 10, BLOCK 1, SAID POINT BEING ON THE SOUTH LINE OF E. MILHAM AVENUE (33 FEET 1/2 WIDTH); THENCE ALONG SAID SOUTH LINE OF E. MILHAM AVENUE, SAID LINE BEING ALSO PART OF THE NORTH LINE OF SAID LOT 10, SOUTH 89 DEGREES 51 MINUTES 00 SECONDS EAST 66.10 FEET TO THE POINT OF BEGINNING; THENCE CONTINUING ALONG SAID SOUTH LINE OF E. MILHAM AVENUE,

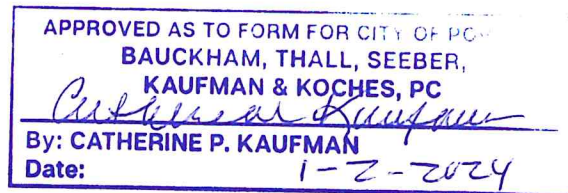


SAID LINE BEING ALSO PART OF THE NORTH LINE OF SAID LOT 10, SOUTH 89 DEGREES 51 MINUTES 00 SECONDS EAST 58.90 FEET; THENCE 62.86 FEET ALONG THE ARC OF A CURVE CONNECTING THE SOUTH LINE OF SAID E. MILHAM AVENUE WITH THE WEST LINE OF CHELSEA LANE (66 FEET WIDE), CONCAVE TO THE SOUTHWEST, RADIUS 40.10 FEET, CHORD BEARING SOUTH 44 DEGREES 56 MINUTES 32 SECONDS EAST 56.62 FEET TO A POINT ON THE WEST LINE OF CHELSEA LANE, SAID POINT BEING ALSO ON THE EAST LINE OF SAID LOT 10; THENCE ALONG SAID WEST LINE OF CHELSEA LANE, SAID LINE BEING ALSO THE EAST LINE OF SAID LOT 10, 11 AND 12 SOUTH 00 DEGREES 00 MINUTES 00 SECONDS WEST 180.00 FEET TO THE SOUTHEAST CORNER OF SAID LOT 12; THENCE ALONG THE SOUTH LINE OF SAID LOT, NORTH 89 DEGREES 51 MINUTES 00 SECONDS WEST 165.00 FEET TO THE SOUTHWEST CORNER OF SAID LOT 12; THENCE ALONG PART OF THE WEST LINE OF SAID LOT 12, NORTH 00 DEGREES 00 MINUTES 00 SECONDS EAST 65.00 FEET; THENCE SOUTH 89 DEGREES 51 MINUTES 00 SECONDS EAST 65.69 FEET; THENCE NORTH 00 DEGREES 09 MINUTES 06 SECONDS EAST 155.00 FEET TO THE POINT OF BEGINNING.

PLEASE TAKE FURTHER NOTICE that if the owners of at least twenty percent (20%) of the area of land included in the proposed zoning change, or if the owners of at least twenty percent (20%) of the area of land included within an area extending outward one hundred feet (100') from any point on the boundary of the land included in the proposed change, excluding public right-of-way or other publicly owned land, file a written protest petition against the proposed amendment presented to the City Council before final legislative action on the amendment, a two-thirds vote of the City Council will be required to pass the amendment.

Dated: \_\_\_\_\_

\_\_\_\_\_  
Erica Eklov, City Clerk



**From:** [Biqi Zhao](#)  
**To:** [Peter Dame](#); [Erica Eklov](#)  
**Subject:** FW: Comment on rezoning Chelsea Lane  
**Date:** Monday, January 8, 2024 8:17:45 AM

---

Good morning,

Please see the email below received this weekend for the comments on rezoning No. 23/24-2 to rezone 6008 and 6018 Chelsea Lane (City Council tomorrow evening 's meeting).

Thanks,

Biqi Zhao, Ph.D., AICP  
Deputy Director of Planning and Zoning | City of Portage Community Development  
7900 S. Westnedge Avenue, Portage, MI 49002  
o 269-329-4475 | f 269-324-0537

-----Original Message-----

From: Fran Denny <[franceshdenny@gmail.com](mailto:franceshdenny@gmail.com)>  
Sent: Saturday, January 6, 2024 1:20 PM  
To: Eric Feldt <[feldte@portagemi.gov](mailto:feldte@portagemi.gov)>; Biqi Zhao <[zhaob@portagemi.gov](mailto:zhaob@portagemi.gov)>  
Subject: Comment on rezoning Chelsea Lane

CAUTION: THIS EMAIL IS FROM AN EXTERNAL SENDER Do not click on links or open attachments unless this is from a sender you know and trust.

Hello:

I would like to register my support for rezoning the properties on Chelsea Lane. I am supportive of a plan that would strongly protect the adjacent residential neighborhood from any additional noise, air and light pollution, trash accumulation, and accessibility and road safety concerns.

I think that the southeast corner of Westnedge and Milham is looking rundown and new development would be good for our community, maybe even the property values of the adjacent residential area, especially if the Chelsea Lane entry area has lovely landscaping. The proposed plan might be improved to assure that.

The new WellNow building on the southwest corner of Westnedge and Milham has been a big improvement to the feel of prosperity and sustainability to that area.

My one concern is some doubt that this fast food chicken business could be successful in this location. There is another similar business that appears to be very successful nearby. We do not want a vacant, limited use and unattended building at Westnedge and Milham in a few years should this business fail or relocate.

Thank you for considering my perspective.

Frances Denny  
Portage MI resident  
Sent from my iPhone

**TO:** Honorable Mayor and City Council

**FROM:** Pat McGinnis, City Manager

**SUBJECT:** Potential Sale of 9303 Portage Road

**SUPPORTING PERSONNEL:** Peter Dame, Chief Development Officer  
Adam Herringa, Chief Operating Officer

**ACTION RECOMMENDED:** Direct the City Administration to sell the property addressed as 9303 Portage Road and authorize the City Manager to execute all documents related to this action.

On July 27, 2021, City Council authorized City Administration to purchase the property addressed as 9303 Portage Road. The argument made in support of the purchase at the time was:

*The acquisition of the subject property is beneficial considering that it can be combined with the adjacent, city-owned property. The resulting combined parcel would be strategic to enhancing connectivity and placemaking within the Lake Center District corridor and is in alignment with the final Lake Center District Corridor & Placemaking Study. Options for future use include increasing the existing area of Lakeview Park, improving pedestrian/neighborhood connectivity between the park and the commercial corridor, and enhancing public spaces where residents may gather.*

At the time of purchase, the Lake Center District Corridor and Placemaking Study had recently been approved, and the City Administration seized an opportunity to purchase property that was coming up for sale, located along Portage Road and contiguous to Lakeview Park. Additionally, the Lake Center District Corridor included "strategic property acquisitions" in the 1-Year Action Plan recommendations.

Since the purchase, the property has sat unused and vacant while potential uses have been evaluated. At this point, the City Administration foresees the two best outcomes as either selling the property and returning it to the tax roll or demolishing the structure and adding the land to Lakeview Park. While the addition of land to the park expands greenspace, the land is not essential to park development plans. Specifically, the planned new boardwalk along the canal in Lakeview Park between West Lake and Austin Lake connects to Portage Road around and south of the house at street level on the east side of Portage Road. It is estimated that the sale price of the property would be approximately \$400,000.

Rather than remaining vacant, the City Administration would prefer to either sell the property or, should the City Council desire, demolish the structure and add the land to Lakeview Park. Therefore, it is recommended that City Council direct the City Administration to sell the property addressed as 9303 Portage Road and authorize the City Manager to execute all documents related to this action.

**FUNDING:** N/A

**Attachments:**      1.      Vicinity Map and Release of Right of Way





9303 Portage Road

Date: 7/22/2021







## RELEASE OF RIGHT OF WAY

For and in consideration of prospective benefits to be derived by reason of the cleaning out,  
relocating, widening, deepening, straightening, tiling and extending  
and maintaining

of a certain Drain under the supervision of the County Drain Commissioner  
of the County of Kalamazoo and State of Michigan, as hereinafter described,

that We, George H. Kibler and Charline D. Kibler  
of 9303 Portage Road, Kalamazoo, Michigan

do hereby convey and release to the said County of Kalamazoo

the Right of Way for a certain Drain, hereinafter more particularly designated and described, over and  
across the following lands<sup>1</sup> owned by us, and situated in the  
Township of Portage County and State aforesaid, and  
more particularly described as follows, to-wit:<sup>4</sup>

Lots 16, 17, 18 and 19 of the "Assessor's Plat of Dixie-Mac Park" as recorded  
in Book 14 of Plats on Page 20 in the office of the Register of Deeds for Kala-  
mazoo County, Michigan, excepting a parcel of land lying twenty (20) feet either  
side of the following described centerline: Beginning at a point on the Easterly  
line of Portage Road which is one hundred three and sixty-nine hundredths (103.69)  
feet North 28°-28' East from the Southwest corner of Lot 16 of said Plat; thence  
South 59°-16' East across Lots 16, 17 and 18 of said Plat, one hundred forty and  
ninety-six hundredths (140.96) feet to a point twenty (20) feet North of the South  
line of said Lot 18; thence East parallel to the South line of Lots 18 and 19 of  
said Plat, fifty-two and eighty-three hundredths (52.83) feet to the East line of  
said Lot 19 for the place of ending.

The Right of Way hereby conveyed and released is for the sole and only purpose of cleaning out,  
relocating, widening, deepening, straightening, tiling, extending and maintaining

over and across said premises a certain Drain, petition for which in writing was made on the  
6th day of September A. D. 19 55, by  
Donald E. Scott

and others, and the necessity for which has been determined by the said  
Board of Determination in their order

bearing date the 20th day of June 19 57, the route and course  
of said Drain is described as follows, to-wit:<sup>4</sup>

Beginning at a point in the Westerly shore of Austin Lake which is 20 feet  
North of the Southeast corner of the "Assessor's Plat of Dixie-Mac Park"  
(said last mentioned point being the lower end of the Austin Lake-West Lake  
Channel); thence West parallel to the South line of said plat, 452.83 feet;  
thence North 59°-16' West, 263 feet to a point in the Easterly shore of West  
Lake (said point being the upper end of Austin Lake-West Lake Channel).

LIBER 750 PAGE 585



This conveyance is based upon the above described line of route and shall be deemed to include the extreme width of said Drain as shown in the survey thereof, to which survey reference is hereby made for a more particular description, and includes a release of all claims to damages in any way arising from or incident to the opening and maintaining of said Drain across said premises; and also sufficient ground on either side of the center line of said Drain, for the construction thereof; and shall be deemed a sufficient conveyance to vest in the County an easement in said lands for the uses and purposes of drainage together with such rights of entry upon, passage over, deposit of excavated earth and storage of material and equipment on such lands, as may be necessary or useful for the construction, maintenance, cleaning out and repair of such drain.

Witness, our hand, seal and this 11<sup>th</sup> day of August 1958.

WITNESSES:

*Malcolm C. Harper*  
Malcolm C. Harper  
*Victor E. Bucknell*  
Victor E. Bucknell

George H. Kibler

*Charline D. Kibler*  
Charline D. Kibler

STATE OF MICHIGAN, ss.

COUNTY OF KALAMAZOO

On this 11<sup>th</sup> day of August 1958, before me,  
a Notary Public in and for  
said County, personally appeared George H. Kibler and Charline D. Kibler

to me known to be the person described in and who executed the foregoing instrument, and  
who acknowledged that they executed the same as their free act and deed.

*Malcolm C. Harper*  
Malcolm C. Harper, Notary Public

My Commission Expires October 17, 1961

## NOTE.

1. In space indicated by figure 1, insert "County Drain Commissioner" or "Drainage Board" as case may require.
2. In space indicated by figure 2, insert "I" or "We" as the case may be, to be followed by the name or names and residence.
3. In space indicated by figure 3, insert "owned" or "occupied" as the facts may require.
4. Give description of land traversed by Drain.
5. In space indicated by figure 5, insert "County Drain Commissioner" or "Drainage Board" as case may require.
6. Give the Drain as surveyed.
7. In space indicated by figure 7, insert "Notary Public" or "the subscriber" etc., as case may require.
8. In space indicated by figure 8, insert "who" or "severally."

The acknowledgment may be taken by the Drain Commissioner, by a Justice of the Peace, or a Notary Public. Every release should be entered by the Commissioner in his book of record.

Wife must sign release if she has an interest in the land other than her inchoate right of dower.

D-6

RELEASE OF RIGHT  
OF WAY

IN THE MATTER OF  
AUSTIN LAKE OUTLET EXTENSION  
DRAIN

GEORGE H. KIBLER

CHARLINE D. KIBLER

TO

COUNTY OF KALAMAZOO

Received for Record, this

day of 19

DOUBLEDAY BROS. & CO.  
241 E. MICHIGAN AVE., KALAMAZOO, MICHIGAN

15 10.00



**CITY COUNCIL AGENDA ITEM A.6.  
JANUARY 9, 2024**

**TO:** Honorable Mayor and City Council

**FROM:** Pat McGinnis, City Manager

**SUBJECT:**

**SUPPORTING PERSONNEL:**

**ACTION RECOMMENDED:**

**FUNDING:**

**Attachments:** None

**TO:** Honorable Mayor and City Council

**FROM:** Pat McGinnis, City Manager

**SUBJECT:**

**SUPPORTING PERSONNEL:**

**ACTION RECOMMENDED:**

**FUNDING:**

**Attachments:** 1. Human Services Board of October 5, 2023.

## **CITY OF PORTAGE HUMAN SERVICES BOARD**

Minutes of the Meeting – October 5, 2023

5:33 p.m. Conference Room 1

**CALL TO ORDER:** The City of Portage Human Services Board meeting of October 5, 2023, was called to order by Brooke Kolodzieczyk, at 5:33 p.m. in Conference Room, Portage City Hall, 7900 S. Westnedge Avenue, Portage MI.

**MEMBERS PRESENT:** Chairperson Brooke Kolodzieczyk, Bridget Lane, Chelsea Huber, John Dillworth, Brian Plescher, and Martha Perry.

**MEMBERS ABSENT:** Sue Beasley, Effie Kokkinos, Vice Chair Jihan Young

**STAFF PRESENT:** Tina Perry

**OTHERS PRESENT:** Ludim Torres, non-voting member

**INTRODUCTIONS:** Chairperson Brooke Kolodzieczyk welcomed Brian Plescher and Martha Perry to the HSB and provided a brief explanation of the board activities. They are replacing Monica Lloyd and Justin Phan, with terms ending in October, 2023. Introductions were made around the room sharing some background and interest in the Human Services Board.

**APPROVAL OF MINUTES:** The Minutes of September 7, 2023, were approved by a motion made by Chelsea Huber and supported by John Dillworth. The motion was unanimously approved, 6-0.

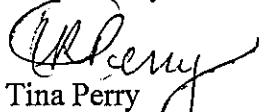
**Human Services funding application** edits. Chairperson Brook Kolodzieczyk led the discussion. She and Sue Beasley did an extensive review and discussion in May, followed by updates at the September 7 HSB meeting. This meeting provided good comments and final edits will complete the application. Perry will revise the ranking sheet for HSB members to utilize and assist in making funding decisions.

**Red Ribbon Week.** Jihan Young has reached out to PPS about speaking engagements in addition to student volunteers to read the proclamation at the October 17, City Council meeting. All HSB members are invited to assist if this is an interest.

**Open House.** The Human Services Open House will replace the normal meeting on Thursday, November 2 from 4:30 – 6:30. HSB members were asked to attend and acquaint themselves with service providers. This is the lead into funding recommendations that will be made by the HSB beginning at the December, 2023 HSB meeting.

**ADJOURN:** Motion to adjourn was made @ 6:09 p.m. by Bridget Lane, supported by John Dillworth and unanimously supported. 6-0.

Respectfully Submitted,



Tina Perry

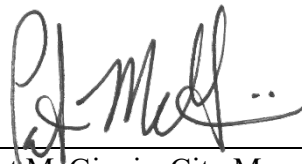
Neighborhood and Housing Specialist Community Development, City of Portage



## MATERIALS TRANSMITTED

December 19, 2023

1. Communication from the City Manager regarding the addition of a Peace Proclamation to the December 19, 2023, City Council meeting agenda – Information Only.
2. Communication from the City Manager regarding the addition of the 2024 City Council Committee Assignments to the December 19, 2023, City Council meeting agenda – Information Only.



---

Pat McGinnis, City Manager

cc Adam Herringa, Chief Operating Officer  
Peter Dame, Chief Development Officer

**TO:** Honorable Mayor and City Council

**FROM:** Pat McGinnis, City Manager

**SUBJECT:** Addition of Peace Proclamation to Agenda

Please find attached the Peace Proclamation that has been added to the agenda for tonight's regular City Council meeting.



# CITY OF PORTAGE PROCLAMATION

## Portage Peace Proclamation

**WHEREAS,** various cultural and faith communities in Portage celebrate the holiday season in many different ways; and

**WHEREAS,** a common theme among all celebrations remains faith in the ultimate value of peace.

**NOW, THEREFORE, BE IT RESOLVED THAT,** the Mayor and City Council of the City of Portage join our fellow humans in celebrating and extending Peace on Earth:

- ☮ Peace in our hearts as we look to the new year.
- ☮ Peace within our families as we strive to mend relationships.
- ☮ Peace in our community where we strive for harmony and inclusiveness.
- ☮ Peace within our country and at our borders as we face a politically charged election year.
- ☮ Peace in our world, especially in areas of conflict in the Middle East and Ukraine.

Signed this 19<sup>th</sup> day of December 2023.

---

Patricia M. Randall, Mayor

**TO:** Honorable Mayor and City Council

**FROM:** Pat McGinnis, City Manager

**SUBJECT:** 2024 City Council Committee Assignments

After taking your submitted preferences into consideration, Mayor Randall has completed the City Council committee assignments for 2024. The roster of assignments is attached.

At the City Council Goal Setting Session on January 9, we will continue discussions around the potential to assign Council members to additional committees or as liaisons regarding small businesses, housing, rentals, and school/library.

## 2024 City Council Committee Appointments

| Committee                     |                                                                        | Appointments                                                        | Meeting Times                                                                                                                                          |
|-------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ad Hoc Committees             | City Manager Salary Review/Evaluation Committee                        | Ledbetter, Pearson, Randall                                         | Fall – as called by the committee.<br>Typically provides recommendation to the full Council as to compensation for the next contract year in November. |
|                               | Water/Sewer (Utility) Rate Committee                                   | Burns, Ledbetter, Miller<br>(citizens Elma "Pat" Maye, Randy Orwig) | Spring – as called by the City Administration.                                                                                                         |
|                               | Investment Committee                                                   | Burns<br>(citizens Aimee Kornowicz and Richard Kraas)               | June / December – as called by the City Administration.<br>Monitors and advises on city investments and city investment policy.                        |
| External/Community Committees | Kalamazoo Area Transportation Study (KATS) Policy Committee            | Urban                                                               | Monthly, 9:00 AM at Metro Transit office – 530 N. Rose St.                                                                                             |
|                               | Discover Kalamazoo Advisory Board                                      | Miller                                                              | Second-floor conference room – 141 E. Michigan Ave. Kalamazoo                                                                                          |
|                               | Kalamazoo County Public Arts Commission                                | Urban                                                               | Monthly, 3rd Wednesday @ 5:00 pm, Epic Center Joliffe Theatre (359 S. Kalamazoo Mall)                                                                  |
|                               | Kalamazoo County Environmental Health Advisory Council                 | Young                                                               | Second Wednesday of Feb., Apr., June, Aug., Oct. and Dec. at 9:00 AM<br>Ground floor conference room D, main wing, Nazareth Complex                    |
|                               | Long Lake Governmental Lake Board                                      | Urban                                                               |                                                                                                                                                        |
|                               | Gourdneck Lake Governmental Lake Board                                 | Urban                                                               |                                                                                                                                                        |
|                               | Portage Community Center Board                                         | Young<br>(non-voting member)                                        | Last Wednesday of each month* except no meeting in March, May, July, or November.<br>*December's meeting is held on the first Wednesday.               |
|                               | Central County Transportation Authority (CCTA) Board                   | Pearson (exp. 10/31/25),<br>Burns (exp. 9/30/26)                    | Monthly, 11:30 AM at Metro Transit Administration Building                                                                                             |
|                               | Kalamazoo County Central Dispatch Authority (KCCDA) Board of Directors | McGinnis (exp. TBD),<br>Ledbetter (exp. TBD),<br>Urban (alt.)       | Meets the 2 <sup>nd</sup> Thursday of each month at 3:30 PM<br>(KCCDA Technical Committee – Nick Arnold / Jeff VanderWiere – alt.)                     |



City of Portage  
Portage City Hall  
7900 S. Westnedge Ave.  
Portage, MI 49002

RE: Environmental Board Projects Update

Dear Mayor and Portage City Council Members,

We hope this letter finds you well. The Environmental Advisory Board is reaching out to showcase our recent achievements and articulate our future goals. We express our sincere gratitude for your continuous support in our collaborative efforts toward fostering a sustainable and eco-friendly future for our city. Building on the consistency of previous years, we remain dedicated to upholding and enhancing the environmental well-being of our community.

As we reflect on our past endeavors and enthusiastically plan for the future, we would like to share the Environmental Advisory Board's recent achievements and outline our forthcoming goals. In the past year, the Environmental Advisory Board has successfully accomplished several impactful goals that have contributed to the environmental well-being of the Portage community.

**We are excited to report the following achievements:**

**I. Arbor Day Event:**

Our Arbor Day Event successfully engaged community members in planting a tree for a greener urban environment. At Portage Central High School, we orchestrated a collaborative tree-planting event attended by a student, staff, local officials, Mayor Randall, and City Manager McGinnis.

**II. Invasive Species Management:**

We continued to support the Parks Department in the non-chemical control of invasive species, particularly garlic mustard, preserving local biodiversity through organized pulls attended by Environmental Advisory Board members. Strengthening this long-standing initiative, we collaborated this past summer with the Parks Department for community engagement with this effort.

**III. Leaf Composting Event and Decarbonization: Department of Public Works:**

Additionally, we actively promoted renewable energy, working with city staff to request an audit of city equipment for the purpose of decarbonization. The Department of Public Works played a vital role in providing crucial information. Remaining committed, we advised and supported the city's ongoing electrification efforts for a greener future. We organized a composting event at the Compost Facility, 10905 Oakland Drive, providing education on the benefits of composting, specifically highlighting the significance of leaf pick-ups and the composting process. Ray Waurio, DPW and Renewed Earth, Dan Glas, our compost site management company were partners in this effort.

**IV. City Community Engagement:**

Via board member attendance, we fostered connections through state and local legislative coffee hours, Master Plan engagement and an A2ZERO Equitable Climate event (Misty Stultz,

Sustainability and Innovation Director) with the broader community and policymakers. Additionally, we also explored a collaborative urban bird treaty alliance with nearby cities such as Kalamazoo.

Looking ahead, we eagerly outline our future objectives and initiatives for continued positive progress.

**Future Goals:**

We are forming a strategy to reinvigorate initiatives focused on environmentally conscious events, and are thrilled to share exciting news about the formation of a Green Week Committee. This committee will play a pivotal role in coordinating and amplifying our endeavors to foster environmental awareness and promote sustainable practices.

Acknowledging the significance of sound governance, we aspire to collaborate closely with city administration. In December, we attended parliamentary procedure training offered by the City of Portage and the Michigan Municipal League. We have begun to introduce parliamentary processes and special rules within our board, strengthening our overall efficiency and decision-making processes.

As an advisory board, we are dedicated to working collaboratively with the Mayor, our esteemed members of the City Council, and the entire community in the upcoming year. Our goal is to provide well-informed recommendations and initiatives that align with the broader vision for our city.

Our specific goals for the future include:

1. Remaining involved in advising the City Council on environmental concerns relating to parks and creek protection, especially in relation to new property developments.
2. Furthering public engagement through educational events and opportunities, including Green Week.
3. Increasing involvement in advising the City Council on matters of sustainability, climate change, and renewable energy.
4. Adopting rules of order for the board to ensure greater efficiency and decorum.
5. Continuing interest in non-chemical management of invasive plant species and pests.

We invite you to share any specific areas or projects you would like us to focus on in the new year. Your insights are invaluable in guiding our efforts towards the most impactful outcomes. We are grateful for the opportunity to contribute to the betterment of our community and look forward to your continued support.

Thank you for your time, and we are excited about the positive impact we can collectively achieve in the coming year.

Sincerely,  
Environmental Advisory Board

**TO:** Honorable Mayor and City Council

**FROM:** Pat McGinnis, City Manager

**SUBJECT:** Regional Industrial Development Districts

**SUPPORTING PERSONNEL:** Aaron Powers, City Assessor  
Erica Eklov, City Clerk  
Jonathon Hallberg, Deputy Director of Economic Development

**ACTION RECOMMENDED:** Subsequent to the public hearing, consider adopting Resolution No. 2 to create six regional Industrial Development Districts in the City of Portage.

The Plant Rehabilitation and Industrial Development Districts Act, (known as the Industrial Facilities Exemption) PA 198 of 1974, as amended, provides a tax incentive to various qualified industrial and related business operations to enable the renovation and expansion of aging facilities, assist in the building of new facilities, and to promote the establishment of high-tech facilities. An Industrial Development District (IDD) must be created before initiating a project. Once a district is in place, a developer or manufacturer must apply for an Industrial Facilities Exemption (IFE) certificate that entitles the facility to an exemption from ad valorem real property taxes for a term of 1–12 years as determined by the City Council.

The City of Portage has historically created districts under an applicant's request, originally utilizing the proposed building's footprint as the district boundary, followed by the property boundaries in more recent years. This current change is proposed to make revisions to industrial projects simpler and avoid the need for the applicant to re-apply for a district modification each time the building size changes. As of 2023, the city has 94 industrial districts with only 13 active PA 198 certificates on file with the City Assessor. At the request of the City Manager's Office, to improve efficiency, staff worked to combine these 94 different districts into six adjacent and related regional districts (proposed Districts 95 through 100). A map of each district is attached along with individual boundary descriptions. It is recommended that the city initiate this combination to streamline the application process for abatement applicants, who would only need to apply for exemption certificates in one of the six resulting districts. Furthermore, the regional districts were assembled utilizing the city's Comprehensive Plan to locate areas where future land uses broadly correlate with the qualifying business types under PA 198 of 1974, as amended.

The practice of pre-setting districts that make economic development tools available to our local businesses (Industrial Development Districts, Brownfield Redevelopment Districts, Corridor Improvement Authorities, Plant Rehabilitation Districts, etc.) is common in Michigan.

**Risk:** creating districts in anticipation of future certificates may slightly dilute the ability of City Council to deny a certificate in the future. The likelihood of this becoming an issue is very low.

**Reward:** approving the new districts eliminates thousands of dollars in meaningless paperwork and

expense for the city and the investor, making Portage a better community in which to do business.

The City of Portage has required business expansions to create a specific district for their project before they can apply for a certificate a total of 94 times. Each time, the businesses hired an attorney and a surveyor to assist them, and the city has never denied an expansion.

The proposed consolidation would have no impact on the 13 existing abatements, nor would it impact the various taxing jurisdictions. As such, it is recommended that City Council, subsequent to the public hearing, consider adopting Resolution No.2 to create six regional Industrial Development Districts in the City of Portage.

**FUNDING:** N/A

**Attachments:**

1. IDD Boundary Map Comparison
2. Resolution #2



PA 198 - IDD Boundaries

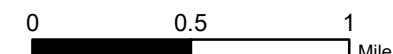
- District Number
- 1

Active Industrial Tax Abatements
- 1

Industrial Development District
- Proposed Industrial Development District

| District | Parcel #  | Current Owner                     | Address                    |
|----------|-----------|-----------------------------------|----------------------------|
| 1-48     | 00012101C | MANN+HUMMEL AUTOMOTIVE INC        | 6700 S SPRINKLE RD         |
| 3        | 000010820 | SUMMIT POLYMERS, INC.             | 3140 E KILGORE RD          |
| 4        | 000281500 | EATON FILTRATION, LLC             | 9151 SHAVER RD             |
| 5        | 00003055A | KALAMAZOO COUNTY STATE BANK       | 5260 LOVERS LN             |
| 8        | 000260600 | SFE PROPERTIES, LLC               | 9718 PORTAGE RD            |
| 9        | 000280400 | BETTEN, RONALD J - TRUSTEE        | 9340 SHAVER RD             |
| 10       | 00029220B | OCME, LLC                         | 1821 VANDERBILT AV         |
| 11       | 000010370 | WILSON, GERALD TRUST              | 5088 MEREDITH ST           |
| 14       | 000120900 | 3700 MILHAM, LLC                  | 3700 E MILHAM AV           |
| 15       | 00021181B | WAL-MART STORES, INC              | 8350 SHAVER RD             |
| 16       | 007200040 | WMH FLUIDPOWER, INC               | 862 LENOX AV               |
| 18       | 06480085E | 1901 ROMENCE LLC                  | 1901 ROMENCE RD PY         |
| 20       | 00021045B | W L MOLDING CO                    | 8212 SHAVER RD             |
| 21       | 06420016H | PORTAGE CENTRE PLAZA LLC          | 129 W CENTRE AV            |
| 22       | 000120860 | PROJECT RE LLC                    | 3900 E MILHAM AV           |
| 23       | 000103700 | GIESKE, VICTOR & JESSICA          | 6666 LOVERS LN             |
| 27       | 000010860 | ELJON REALTY, LLC                 | 3737 E MILHAM AV           |
| 29       | 000131000 | SANDMEYER II, JOHN C TRUSTEE      | 7600 S SPRINKLE RD         |
| 30       | 00021331A | LEVANNES, INC                     | 8840 PORTAGE INDUSTRIAL DR |
| 31       | 000010150 | BEA-REAL, L.L.C.                  | 3700 E KILGORE RD          |
| 32       | 00013095B | BUSINESS ONE USA                  | 7700 S SPRINKLE RD         |
| 33       | 000163800 | NASH GREENHOUSES, LLC             | 1028 SCHURING RD           |
| 34       | 000010870 | NORTH AMERICAN COLOR, INC         | 5960 S SPRINKLE RD         |
| 35       | 000010870 | NORTH AMERICAN COLOR, INC         | 5960 S SPRINKLE RD         |
| 37       | 00013086A | PIENTA, ANTHONY J & B J           | 7910 S SPRINKLE RD         |
| 38       | 000010880 | NORTH AMERICAN COLOR INC          | 3901 E MILHAM AV           |
| 39       | 000103550 | MGL HOLDINGS, LLC                 | 6742 LOVERS LN             |
| 40       | 00012107A | STRYKER CORP                      | 6300 S SPRINKLE RD         |
| 41       | 00012116A | SPRINKLE ENGINEERING BUILDING, LL | 6615 S SPRINKLE RD         |
| 42       | 000130960 | BUSINESS ONE USA                  | 7670 S SPRINKLE RD         |
| 43       | 000103560 | FAWLEY & SON, LLC                 | 6732 LOVERS LN             |
| 45       | 00013076A | K PAUL PROPERTIES, LLC            | 3921 E CENTRE AV           |
| 46       | 00028092A | J RETTENMAIER USA, LP             | 1615 VANDERBILT AV         |
| 1-48     | 000121050 | MANN+HUMMEL AUTOMOTIVE INC        | 6400 S SPRINKLE RD         |
| 50       | 000213100 | LIBERTY DEVELOPMENT               | 8631 PORTAGE INDUSTRIAL DR |
| 52       | 00021185A | MEIJER INC                        | 8850 SHAVER RD             |
| 53       | 00012117A | BOWERS MANUFACTURING CO           | 6565 S SPRINKLE RD         |
| 55       | 000290010 | FEMA CORPORATION                  | 1716 VANDERBILT AV         |
| 56       | 00012115C | SUMMIT POLYMERS INC               | 6715 S SPRINKLE RD         |
| 57       | 064400020 | COMMERCIAL PROPERTIES PARTNERS    | 4169 COMMERCIAL AV         |
| 58       | 06442009B | IPTV-B-C31, LLC                   | 4570 COMMERCIAL AV         |
| 59       | 00028090B | INTERFIBE MFG LIMITED PARTNERSHIP | 1659 VANDERBILT AV         |
| 61       | 00013020D | HOWARD PRINTING CO                | 7419 S SPRINKLE RD         |
| 62       | 000010870 | NORTH AMERICAN COLOR, INC         | 5960 S SPRINKLE RD         |
| 63       | 00012070B | STRYKER CORP                      | 4100 E MILHAM AV           |
| 67       | 064430110 | S/B LANDQUEST, LLC                | 6292 AMERICAN AV           |
| 68       | 00012115H | KALAMAZOO QUALITY WAY ONE, INC    | 6859 QUALITY WA            |
| 69       | 000181570 | ANGLING PARTNERS, LLC             | 8001 ANGLING RD            |
| 70       | 06442010A | BICKINGS, TIMOTHY P & D A         | 4481 COMMERCIAL AV         |
| 72       | 00012080R | SUMMIT POLYMERS INC               | 4750 EXECUTIVE DR          |
| 73       | 000294300 | SHAVER OAKS PROPERTIES            | 9821 OAKLAND DR            |
| 74       | 00012001A | COLONIAL ENGINEERING, INC         | 6400 CORPORATE AV          |
| 76       | 00021335A | SPONTELLI, MICHAEL & L            | 8785 PORTAGE INDUSTRIAL DR |
| 77       | 00012115W | HUSKER HOLDINGS LLC               | 6700 QUALITY WA            |
| 78       | 00012115X | KC EAGER LLC                      | 6710 QUALITY WA            |
| 79       | 00028092A | J RETTENMAIER USA, LP             | 1615 VANDERBILT AV         |
| 81       | 00014001B | PHARMACIA & UPJOHN COMPANY        | 7171 PORTAGE RD            |
| 82       | 00024075A | STRYKER CORP                      | 3800 E CENTRE AV           |
| 83       | 00012070B | STRYKER CORP                      | 4100 E MILHAM AV           |
| 85       | 00028152A | IMPACT FOODS, LLC                 | 9229 SHAVER RD             |
| 86       | 00028005G | R.L. GOOCH HOLDINGS LLC           | 9185 PORTAGE INDUSTRIAL DR |
| 87       | 00012115H | KALAMAZOO QUALITY WAY ONE, INC    | 6859 QUALITY WA            |
| 88       | 00012119C | HARLEY INVESTMENT CO              | 6740 QUALITY WA            |
| 89       | 00028152A | IMPACT FOODS, LLC                 | 9229 SHAVER RD             |
| 90       | 00011010I | KENCO                             | 6501 PORTAGE RD            |
| 91       | 00014001C | PHARMACIA & UPJOHN COMPANY        | 7171 PORTAGE RD            |
| 92       | 000110250 | STRYKER CORP                      | 6520 PORTAGE RD            |
| 93       | 000281450 | MIDWEST PROPERTIES, LLC           | 9031 SHAVER RD             |
| 94       | 00003155B | IPUSA PORTAGE 1, LLC              | 801 E MILHAM AVE           |

Districts #: 2,6,7,12,13,17,19,24,25,26,28,36,44,47,49,51,54,60,64,65,66,71,75,80 and 84 intentionally omitted. These districts no longer exist.



Date: 11/30/2023



**CITY OF PORTAGE, MICHIGAN  
RESOLUTION NO. 2**

**DESIGNATING PORTAGE INDUSTRIAL DEVELOPMENT DISTRICTS  
NO. 95, 96, 97, 98, 99 and 100**

Minutes of a regular meeting of the City Council for the City of Portage, Michigan held on January 9, 2024, at 7:00 p.m. local time at City Hall in the City of Portage, Michigan.

PRESENT: \_\_\_\_\_

ABSENT: \_\_\_\_\_

The following resolution was offered by:

COUNCILMEMBER: \_\_\_\_\_, and supported by:

COUNCILMEMBER: \_\_\_\_\_.

WHEREAS, the City Council has met in public hearing as heretofore resolved and noticed for the purpose of determining whether certain described areas and/or properties, as referenced on attached Exhibit A, may be established as Industrial Development Districts 95, 96, 97, 98, 99 and 100, pursuant to 1974 PA 198, MCLA 207.551, et seq.; and

WHEREAS, each of these described areas and/or properties meets all of the prerequisites of the cited Act;

NOW THEREFORE, BE IT RESOLVED that the following described areas and/or properties as referenced on attached Exhibit A be designated as Industrial Development Districts No. 95, 96, 97, 98, 99 and 100:

Please see attached Exhibit "A"

ADOPTED: AYES: Councilmember \_\_\_\_\_

NAYS: Councilmember \_\_\_\_\_

ABSENT: Councilmember \_\_\_\_\_

All resolutions or parts of resolutions are, to the extent of any conflict with this resolution, rescinded.

RESOLUTION DECLARED ADOPTED:

\_\_\_\_\_  
Erica Eklov, City Clerk

CERTIFICATION

I hereby certify that the foregoing is a true and complete copy of Resolution #2 adopted at a regular meeting of the City Council of the City of Portage, Kalamazoo County, Michigan held on January 9, 2024, the original of which is in the official proceedings of the City Council.

\_\_\_\_\_  
Erica Eklov, City Clerk

PREPARED BY:  
Catherine Kaufman (P65412)  
Portage City Attorney  
Bauckham Sparks  
470 W. Centre Ave, Suite A  
Portage, Michigan 49024

Approved as to Form:

Date: 1-3-2024

By: Catherine Kaufman  
City Attorney

## Exhibit A

### District 95

Land located in Sections 20, 21, 28, 29 Town 3 South Range 11 West, Described as follows: beginning at the intersection of the south line of West Melody Avenue and the east line of Dolphin Street, said point being the northeast corner of Outlot B of MELODY MEADOWS; thence South 192.5 feet along the east line of Outlot B to the southeast corner of Outlot B, said point also being the northeast corner of Lot 143 of MELODY MEADOWS #2; thence West 132 feet along the north line of Lot 143 to the northwest corner of Lot 143; thence South 1081.65 feet along the west line of MELODY MEADOWS #2 to the southwest corner of the north  $\frac{1}{2}$  of Lot 154; thence West 50 feet parallel with the north line of Lot 154; thence South 468.09 feet parallel with the west line of MELODY MEADOWS #2; thence East 50 feet to the west line of MELODY MEADOWS #2, said point also being the southwest corner of Lot 158 of MELODY MEADOWS #2; thence South 704 feet along the west line of MELODY MEADOWS #2 to the southwest corner of Lot 166 of MELODY MEADOWS #2; thence East 330 feet along the south line of MELODY MEADOWS #2 to the southeast corner of Lot 118 of MELODY MEADOWS #2; thence South 1321.68 feet to the north line of Unit 7 of PORTAGE INDUSTRIAL PARK CONDOMINIUM; thence East 300 feet along the north line of Unit 7 of PORTAGE INDUSTRIAL PARK CONDOMINIUM to the northeast corner of Unit 7; thence South 600.58 feet long the east line of Unit 7 of PORTAGE INDUSTRIAL PARK CONDOMINIUM to the southeast corner of Unit 7 of PORTAGE INDUSTRIAL PARK CONDOMINIUM; thence West 1329.69 feet to the southwest corner of Unit 9 of PORTAGE INDUSTRIAL PARK CONDOMINIUM; thence North 409.98 feet along the west line of Unit 9 of PORTAGE INDUSTRIAL PARK CONDOMINIUM; thence North 89 degrees 53 minutes 41 seconds West 856.33 feet parallel with said north line; thence South 00 degrees 03 minutes 25 seconds East 430 feet parallel with said east line; thence North 89 degrees 53 minutes 41 seconds West 1252.67 feet parallel with said north line to the center line of Shaver Road (Formerly Highway US 131); thence southwesterly along the center line of Shaver Road to a point on the south line of the northwest  $\frac{1}{4}$  of Section 28; thence West along the south line of the northwest  $\frac{1}{4}$  of Section 28 to the westerly line of Shaver Road at a point North 89 degrees 59 minutes 23 seconds East 116.95 feet from the west  $\frac{1}{4}$  corner of Section 28; thence South 29 degrees 38 minutes 07 seconds West (previously recorded as South 29 degrees 39 minutes West) 152.31 feet along the westerly line of Shaver Road; thence North 60 degrees 21 minutes 53 seconds West 145.41 feet; thence North 89 degrees 50 minutes 19 seconds West (previously recorded as South 89 degrees 55 minutes 07 seconds West) 198.90 feet; thence North 44 degrees 50 minutes 19 seconds West 67.78 feet; thence North 00 degrees 05 minutes 30 seconds West 12.78 feet; thence South 89 degrees 55 minutes 07 seconds West 788.66 feet; thence North 00 degrees 00 minutes 02 seconds West 1328.49 feet to the north line of the southeast  $\frac{1}{4}$  of the northeast  $\frac{1}{4}$  of Section 29, said point being in the centerline of Vanderbilt Avenue; thence East 304.85 feet along the centerline of Vanderbilt Avenue; thence North 00 degrees 17 minutes 13 seconds West 1147.02 feet (previously described as 1144.59 feet and 1145.38 feet); thence North 89 degrees 54 minutes 57 seconds East 330 feet; thence North 00 degrees 14 minutes 24 seconds West 165 feet to the north line of Section 29; thence North 89 degrees 54 minutes 57 seconds East 330.26 feet along the north line of Section 29 to the northeast corner of Section 29; thence South 00 degrees 04 minutes 42 seconds West 99.04 feet along the east line of Section 29; thence South 89 degrees 35 minutes 53 seconds East 1639.46 feet more-or-less parallel to the north line of Section 28 to the center line of Shaver Road; thence Northwesterly 2,922 feet more-or-less along the centerline of Shaver Road to the intersection with the centerline of West Melody Avenue; thence Easterly 382 feet more-of-less along the centerline of West Melody Avenue to the intersection with the extension north of the west line of Dolphin Street; thence South 33 feet along the extension north of the west line of Dolphin Street to the point of beginning.

## District 96

ROSEDALE SUBDIVISION Lot 160 & Lot 161. Also beginning at the intersection of the centerline of Shaver Road and the south line of Lot 161 of ROSEDALE SUBDIVISION, said south line also being the south line of the ROSEDALE SUBDIVISION, as extended east; thence Southwesterly along the centerline of Shaver Road to a point North 29 degrees 39 minutes East (also recorded as North 29 degrees 10 minutes 06 seconds East) 517.55 feet from the centerline of Section 21 Town 3 South Range 11 West; thence North 60 degrees 21 minutes West (also recorded as North 60 degrees 49 minutes 54 seconds West) 360 feet; thence North 29 degrees 39 minutes East (also recorded as North 29 degrees 10 minutes 06 seconds East) 200 feet; thence North 60 degrees 22 minutes West (also recorded as North 60 degrees 49 minutes 54 seconds West) 260 feet; thence South 29 degrees 39 minutes West (also recorded as South 29 degrees 10 minutes 06 seconds West) 200 feet; thence North 60 degrees 22 minutes West 286.49 feet (also recorded as North 60 degrees 49 minutes 54 seconds West 286.09 feet) to the north & south  $\frac{1}{4}$  line of Section 21; thence North 00 degrees 27 minutes 36 seconds West (also recorded as North 00 degrees 00 minutes 55 seconds West) 425.66 feet along the north & south  $\frac{1}{4}$  line of Section 21 and along the westerly line of BEL-AIRE INDUSTRIAL PARK; thence South 89 degrees 54 minutes 56 seconds West 348 feet more-or-less along the north line of the south  $\frac{1}{2}$  of the northwest  $\frac{1}{4}$  of Section 21 to the centerline of Portage Creek; thence Northeasterly along the centerline of Portage Creek to its intersection with the north & south  $\frac{1}{4}$  line of Section 21 also being on the west line of the ROSEDALE SUBDIVISION; thence South along the north & south  $\frac{1}{4}$  line of Section 21 also being on the west line of the ROSEDALE SUBDIVISION to the southwest corner of Lot 1 of ROSEDALE SUBDIVISION; thence East approximately 1571 feet along the south line of ROSEDALE SUBDIVISION and as extended east to the intersection with the centerline of Shaver Road and the point of beginning.

## District 97

Beginning at the intersection of the centerline of Lovers Lane with the north line of Section 10, Town 3 South Range 11 West; thence East along the north line of Section 10 and the north line of Section 11 to a point 1,977.26 East of the North  $\frac{1}{4}$  post of Section 11; thence South 655.84 feet; thence South 13 degrees East 35.22 feet; thence South 13 degrees 49 minutes 50 seconds East 187.65 feet along the east line of vacated Mastenbrook Drive; thence South 14 degrees 11 minutes 14 seconds East 2,570.40 feet; thence South 1,939.44 feet more-or-less to the centerline of East Romence Road; thence East 1,325 feet more-or-less along the centerline of East Romence Road to the east right-of-way line of the Pennsylvania Railroad; thence North 7,960 feet along the east right-of-way line of the Pennsylvania Railroad to a point 2,729.25 feet South of the north line of Section 1, Town 3 South Range 11 West, said point being on the jurisdictional line with the City of Kalamazoo; thence East to the centerline of South Sprinkle Road; thence South along the centerline of South Sprinkle Road to the centerline of East Milham Avenue; thence East along the centerline of East Milham Avenue to the east city limits line of the City of Portage; thence South along the east city limits line of the City of Portage to the centerline of Bishop Avenue, said line also being the north line of Section 3, Town 3 South Range 11 West; thence West along the centerline of Bishop Avenue, also being the north line of Section 3, to a point North 89 degrees 33 minutes 00 seconds East 722.46 feet from the north  $\frac{1}{4}$  post of Section 3; thence South 01 degrees 22 minutes 15 seconds West 2,660.8 feet to the east & west  $\frac{1}{4}$  line of Section 3; thence North 89 degrees 45 minutes 30 seconds West 730.48 feet to the north & south quarter line of Section 3, said point also being the centerline of South Sprinkle Road; thence South 5,336 feet more-or-less along said north & south  $\frac{1}{4}$  line and the centerline of South Sprinkle Road to the intersection with the centerline of Zylman Avenue; thence West 5,649 feet more-or-less along the centerline of Zylman Avenue to the intersection with the centerline of Portage Road; thence Northeasterly 2,674 feet more-or-less along the centerline of Portage Road to the intersection with the centerline of East Centre Avenue; thence North 1,330.58 feet more-or-less along the centerline of Portage Road to the north line of the south  $\frac{1}{2}$  of the southwest  $\frac{1}{4}$  of Section 14, Town 3 South Range 11 West; thence West 2,626.10 feet parallel with the south line of Section 14, Town 3 South Range 11 West to the east line of Section 15, Town 3 South Range 11 West; thence North 150.35 feet along the east line of Section 15; thence North 52 degrees 08 minutes 15 seconds 1605.84 feet to the east line of Lovers Lane; thence North 90 degrees 00 minutes 00 seconds West to the centerline of Lovers Lane; thence North 2,845.5 feet more-or-less along the centerline of Lovers Lane to the intersection with the centerline of Romence Road Parkway; thence North along the centerline of Lovers Lane to a point 244.45 feet North of the south line of Section 10, Town 3 South Range 11 West; thence West 165 feet; thence North 132 feet; thence West 594 feet; thence North 264 feet; thence West 546.3 feet to the centerline of the Portage Creek; thence Northerly 4,328 feet more-or-less along the centerline of the Portage Creek to a point on the north line of the south 2,090.8 feet of the northeast  $\frac{1}{4}$  of Section 10, Town 3 South Range 11 West; thence East to the centerline of Lovers Lane; thence Northerly 558 feet more-or-less along the centerline of Lovers Lane to the north line of Section 10, Town 3 South Range 11 West and the point of beginning.



## District 98

Land located in the Southwest  $\frac{1}{4}$  of Section 3, Town 3 South, Range 11 West, Described as follows: Commencing at the southwest corner of Section 3; thence South 89 degrees 19 minutes 05 seconds East 1,332.65 feet to the point of beginning; thence North 00 degrees 39 minutes 17 seconds East 2,253.92 feet to the southerly right-of-way line of I-94; thence Easterly 588.24 feet along the southerly right-of-way line of I-94 described as being along a curve to the left having a radius of 6,345.45 feet, a central angle of 05 degrees 18 minutes 41 seconds and a chord bearing North 84 degrees 14 minutes 24 seconds East 588.03 feet; thence South 08 degrees 24 minutes 57 seconds East 50 feet along the southerly right-of-way line of I-94; thence Easterly 511.31 feet along the southerly right-of-way line of I-94 described as being along a curve to the left having a radius of 6,395.45 feet, a central angle of 04 degrees 34 minutes 51 seconds and a chord bearing North 79 degrees 17 minutes 37 seconds East 511.81 feet; thence South 52 degrees 21 minutes 52 seconds East 235.31 feet along the southerly right-of-way line of I-94 to the westerly right-of-way line of the Norfolk Southern Railway Company (formerly being the New York Central Railroad and formerly being the Lake Shore and Michigan Southern Railroad); thence easterly 100 feet more-or-less along the southerly right-of-way line of I-94 to the easterly right-of-way line of the Norfolk Southern Railway Company (formerly being the New York Central Railroad and formerly being the Lake Shore and Michigan Southern Railroad); thence North 00 degrees 13 minutes 42 seconds West along said easterly right-of-way line to an angle point in the southerly right-of-way line of I-94; thence North 36 degrees 34 minutes 46 seconds East 130.12 feet along the southerly right-of-way line of I-94; thence Northeasterly 152.08 feet along the southerly right-of-way line of I-94 described as being along a curve to the right having a radius of 8,195.94 feet and a chord bearing North 72 degrees 45 minutes 07 seconds East 152.07 feet; thence Northeasterly 132.96 feet along the southerly right-of-way line of I-94 described as being along a curve to the right having a radius of 8,195.94 feet and a chord bearing North 71 degrees 45 minutes 20 seconds East 132.95 feet; thence Northeasterly 104.87 feet along the southerly right-of-way line of I-94 described as being along a curve to the right having a radius of 8,195.94 feet and a chord bearing North 70 degrees 55 minutes 28 seconds East 140.87 feet; thence South 60 degrees 33 minutes 47 seconds East 65.16 feet; thence North 57 degrees 15 minutes 31 seconds East 32.50 feet; thence South 40 degrees 27 minutes 27 seconds East 12.60 feet; thence South 76 degrees 28 minutes 58 seconds East 10.65 feet; thence North 76 degrees 41 minutes 22 seconds East 23.74 feet; thence South 76 degrees 15 minutes 04 seconds East 11.90 feet; thence South 34 degrees 30 minutes 55 seconds East 6.51 feet; thence North 83 degrees 47 minutes 52 seconds East 13.85 feet; thence North 06 degrees 12 minutes 08 seconds West 5.73 feet; thence North 83 degrees 47 minutes 52 seconds East 37.68 feet; thence South 75 degrees 55 minutes 55 seconds East 47.99 feet; thence South 58 degrees 01 minutes 48 seconds East 49.96 feet; thence South 21 degrees 34 minutes 59 seconds East 74.71 feet; thence South 08 degrees 02 minutes 21 seconds East 67.14 feet; thence South 01 degrees 48 minutes 12 seconds East 33.97 feet; thence South 23 degrees 13 minutes 47 seconds East 65.80 feet; thence South 17 degrees 12 minutes 57 seconds East 131.49 feet; thence North 83 degrees 28 minutes 57 seconds East 51.47 feet; thence North 64 degrees 54 minutes 57 seconds East 51.86 feet; thence North 57 degrees 52 minutes 19 seconds East 23.27 feet; thence North 35 degrees 37 minutes 54 seconds East 86.53 feet; thence South 82 degrees 13 minutes 35 seconds East 19.92 feet; thence South 53 degrees 42 minutes 31 seconds East 16.09 feet; thence South 07 degrees 15 minutes 15 seconds East 28.23 feet; thence South 34 degrees 01 minutes 35 seconds East 94.61 feet; thence South 613.30 feet perpendicular to the south line of Section 3; thence South 46 degrees 39 minutes 20 seconds West 207.77 feet; thence South 39 degrees 00 minutes 26 seconds 117.50 feet; thence South 26 degrees 13 minutes 53 seconds West 89.90 feet; thence South 20 degrees 10 minutes 05 seconds West 136.27 feet; thence East to the centerline of Portage Creek; thence Southerly along the centerline of Portage Creek to the south line of Section 3; thence West along the south line of Section 3 to a point South 89 degrees 19 minutes 05 seconds East 1,332.65 feet from the southwest corner of Section 3, said point also be the point of beginning.

## District 99

Land located in Section 1, Town 3 South Range 11 West, Described as follows: Commencing at the northeast corner of Section 1; thence South 00 degrees 23 minutes 15 seconds East, historically listed as South 00 degrees 03 minutes 16 seconds East, 1,667.78 feet along the east line of the northeast fractional  $\frac{1}{2}$  of Section 1 to the south line of the north 10 acres of southeast  $\frac{1}{4}$  of the northeast  $\frac{1}{4}$  of Section 1; thence South 88 degrees 34 minutes 22 seconds West 1,292.86 feet more-or-less along said south line to the center line of Meredith Street right-of-way; thence North along the centerline of Meredith Street right-of-way to a point 328.90 feet north of the southeast corner of the northwest fractional  $\frac{1}{4}$  of the northeast fractional  $\frac{1}{4}$  of Section 1; thence West 580 feet; thence North 701.96 feet; thence East 800.25 feet parallel with the north line of Section 1; thence South 86.5 feet to a point 433 feet south of the north line of Section 1; thence West 1,256.80 feet parallel with the north line of Section 1 to the east right-of-way line of the Pennsylvania Railroad; thence North 433 feet along the east right-of-way line of the Pennsylvania Railroad to the north line of Section 1; thence East along the north line of Section 1 to the northeast corner of Section 1 and the point of beginning.

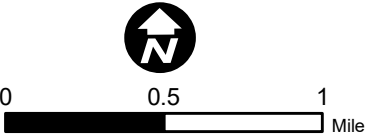
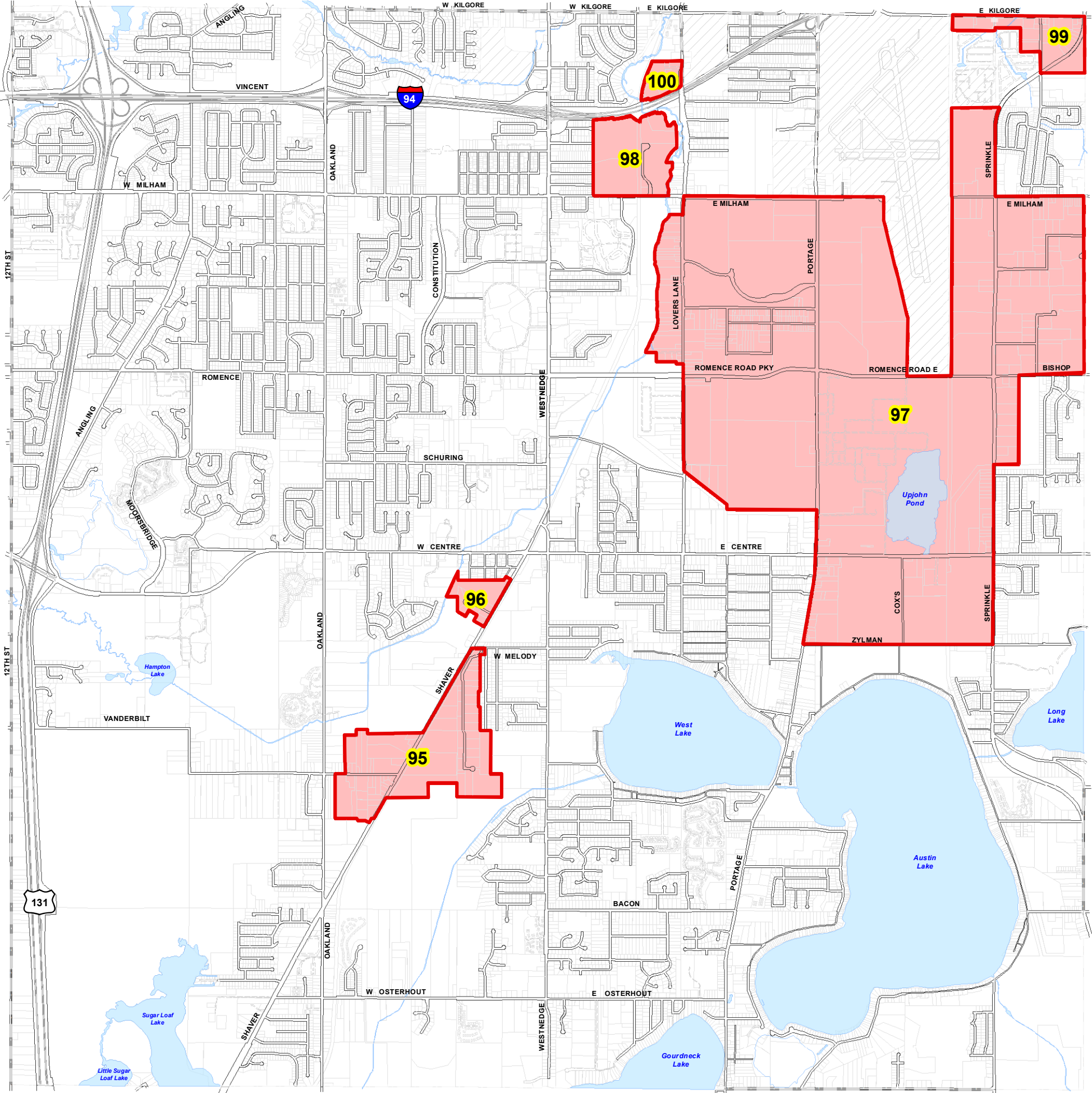
**District 100**

Land located in Section 3, Town 3 South Range 11 West, Described as follows: Commencing at the north  $\frac{1}{4}$  post of Section 3; thence East 1,205.15 feet to the northeasterly extension of the west right-of-way line of Lovers Lane; thence South 1,449.46 feet (recorded as 1,450.26 feet) to the point of beginning; thence South along the west right-of-way line of Lovers Lane to the northerly right-of-way line of I-94; thence Southwesterly along the northerly right-of-way line of I-94 to its intersection with the easterly line of the Norfolk Southern Railway Company (formerly being the New York Central Railroad and formerly being the Lake Shore and Michigan Southern Railroad) right-of-way; thence Northeasterly 1,250 feet more-or-less along the easterly line of the New York Central Railroad (formerly Lake Shore and Michigan Southern Railroad) right-of-way to the north line of the Southwest  $\frac{1}{4}$  of the Northeast fractional  $\frac{1}{4}$  of Section 3; thence Easterly 839.63 feet more-or-less to the west right-of-way line of Lovers Lane and the point of beginning.



Proposed Blanket IDD District Boundaries

District Number 90 Proposed IDD Districts



Date: 11/22/2023

Path: R:\GISADMIN\Nikar\projects\IDPT\SCOM DEV\idd\IDD\_proposed\_no\_existing.mxd

**TO:** Honorable Mayor and City Council

**FROM:** Pat McGinnis, City Manager

**SUBJECT:** Amendment to Section 14, Article 4 (Solicitors and Canvassers)

**SUPPORTING PERSONNEL:** Erica Eklov, City Clerk

**ACTION RECOMMENDED:** Adopt the amendment to Section 14, Article 4 (Solicitors and Canvassers) of the Portage Code of Ordinances, and the Fee Resolution.

In an effort to better regulate door-to-door soliciting, the City of Portage requires solicitors or "peddlers" to apply for a permit by completing an application. The application includes a summary background review performed by the Portage Department of Public Safety - Police Division. City permits are valid for no longer than a period of one year and currently, there is not a fee to apply for the permit and subsequent review. There are various permits that the City of Portage offers and most require a fee due to staff time entailed. In addition to receiving the application and forwarding it to the Police Division, the City Clerk's Office posts the current solicitors on the city website for citizen reference, follows up with applicants, and takes calls from citizens with complaints or inquiries about solicitors in their area. The solicitation permit is necessary to ensure that Portage residents are assured those solicitors who visit their homes have been reviewed by the City of Portage.

The staff recommends that, in addition to completing an application to solicit within the City of Portage, a nominal fee be required. Based on the attached fee comparison following a review of surrounding communities, it is recommended that a fee of \$50.00 per application be created. In addition to the ordinance amendment, the attached fee resolution will address this measure. Based on inquiries received in the last two years, plus the recommendation of an associated fee, the ordinance is also being updated to clarify the exemption of non-profit, community service, and certain social organizations.

Finally, the City Administration is recommending the Council also define the hours of operation in the ordinance at this time. While no complaints have been reported, the cities of Ann Arbor, Grand Haven, Holland, Northville, Plymouth, and Traverse City all limit the time when solicitation is permitted in their communities. Following the Council discussion during the first reading of the ordinance on December 19, 2023, the proposed ordinance was modified to define the permitted hours of operation between 8 a.m. and 8 p.m., as well as ensure exempted parties still adhere to the permitted hours (Sections 14-143(D) and 14-148).

As such, it is recommended that the City Council adopt the amendment to Section 14, Article 4 (Solicitors and Canvassers) of the Portage Code of Ordinances, as well as adopt the associated Fee Resolution.

**FUNDING:** No expenditure is involved. Revenue for staff review and oversight time incurred would result.



- Attachments:**
1. Ordinance Amendment 12.20.23 (clean)
  2. ARTICLE 4. SOLICITORS\_AND\_CANVASSERS Ordinance (updated revisions) 12.20.23
  3. Solicitors Fees Comparison 2022-23
  4. Fee Resolution 1.9.24 (approved to form)

## **ARTICLE 4. SOLICITORS AND CANVASSERS<sup>1</sup>**

### ***DIVISION 1. GENERALLY***

#### **Sec. 14-121. Definitions.**

The following words, terms and phrases, when used in this article, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

*Solicitor* and *canvasser* mean an individual soliciting contributions or taking, or attempting to take, orders for the sale of goods, wares and merchandise or other personal property for future delivery or for services to be furnished or performed in the future, whether or not such individual has, carries or exposes for sale a sample of the subject of such sale, or whether or not he is collecting an advance payment on such sale. The term "solicitor" or "canvasser" includes any person who for himself, or for another person, hires, leases, uses or occupies a building or structure, whether permanent or temporary, or another place in the city, for the sole purpose of exhibiting samples and taking orders for future delivery. The term "solicitor" or "canvasser" does not include a person licensed to do business under the statutes of the state where there exists a state board or agency whose purpose is to regulate the conduct of its licensees.

(Min. Bk. 1979, p. 424, Vol. 8, 5-15-1979; Code 1983, § 860.01)

Cross reference(s)—Definitions generally, § 1-2.

#### **Secs. 14-122—14-140. Reserved.**

### ***DIVISION 2. PERMIT***

#### **Sec. 14-141. Required.**

No person shall engage in the activity of a solicitor or canvasser in the city without first obtaining a permit therefor in compliance with this article.

(Min. Bk. 1979, p. 424, Vol. 8, 5-15-1979; Code 1983, § 860.02)

---

<sup>1</sup>Cross reference(s)—Streets, sidewalks and other public places, ch. 66.

State law reference(s)—Home solicitation sales, MCL 445.111 et seq., MSA 19.416(201) et seq.; transient merchants, MCL 445.371 et seq., MSA 19.691 et seq.

---

**Sec. 14-142. Application and Fee.**

- (a) An applicant for a permit required under this article shall file with the city clerk a sworn application in writing on a form to be furnished by the clerk, which shall give such information as required by the clerk and the chief of police.
- (b) A nonrefundable application review fee set annually by resolution of the city council shall be submitted with the application for a permit.

(Min. Bk. 1979, p. 424, Vol. 8, 5-15-1979; Code 1983, § 860.03)

**Sec. 14-143. Investigation; issuance or denial; contents; operations.**

- (a) Upon receipt of the application provided for in section 14-142, the application shall be referred to the chief of police, who shall cause such investigation of the applicant's background to be made as he deems necessary for the protection of the public good.
- (b) A permit issued under this article may be denied by the city clerk for any of the following reasons:
  - (1) Fraud, misrepresentation or a false statement contained in the application for the permit; or
  - (2) A conviction of a crime or misdemeanor involving moral turpitude.
- (c) If a permit is approved, the city clerk shall execute a permit addressed to the applicant and deliver such permit to the applicant. Such permit shall contain the signature and seal of the clerk, the date of issuance and the length of time the permit is to be operative, as well as the permit number and other identifying description of a vehicle used in the soliciting or canvassing. The clerk shall keep a permanent record of all permits issued.
- (d) Soliciting and canvassing are not permitted within the City of Portage between 8:00 p.m. and 8:00 a.m.

(Min. Bk. 1979, p. 424, Vol. 8, 5-15-1979; Code 1983, § 860.04)

**Sec. 14-144. Records of violations.**

- (a) Any public safety officer may require any person seen soliciting or canvassing and who is not known by such officer to be duly licensed, to show proof of a license issued by the city clerk, and to enforce the provisions of this ordinance against any person found to be violating them.
- (b) The chief of police shall report to the city clerk all convictions for violations of the provisions of this article, and the clerk shall maintain a record for each permit issued and record the reports of violation therein.

(Min. Bk. 1979, p. 424, Vol. 8, 5-15-1979; Code 1983, § 860.05)

**Sec. 14-145. Appeals.**

A person aggrieved by the action of the chief of police or the city clerk in the denial or revocation of a permit, as set forth in section 14-143 or section 14-147, may appeal to the council. Such appeal shall be taken by filing with the council, within 14 days after notice of the action complained of has been mailed to such person's last known address, a written statement setting forth fully the grounds for the appeal. The council shall set a time and place for a hearing on such appeal, and notice of such hearing shall be given to the appellant at his last known address by mail (postage prepaid) at least five days prior to the date set for the hearing.

---

(Min. Bk. 1979, p. 424, Vol. 8, 5-15-1979; Code 1983, § 860.07)

#### **Sec. 14-146. Expiration.**

A permit issued under this article shall be valid for not longer than one year.

(Min. Bk. 1979, p. 424, Vol. 8, 5-15-1979; Code 1983, § 860.08)

#### **Sec. 14-147. Revocation.**

A permit issued under this article may be revoked by the chief of police for any of the following reasons:

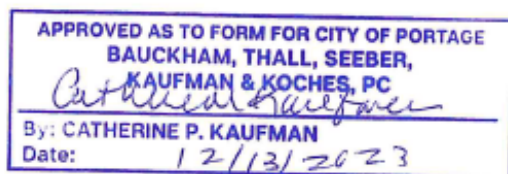
- (1) Fraud, misrepresentation or a false statement contained in the application for the permit;
- (2) Fraud, misrepresentation or a false statement made in the course of carrying on one's business as a solicitor or a canvasser;
- (3) A violation of any of the provisions of this article;
- (4) A conviction of a crime or misdemeanor involving moral turpitude; or
- (5) Conducting the business of soliciting or canvassing in an unlawful manner or in such a manner as to constitute a breach of the peace or a menace to the health, safety or general welfare of the public.

(Min. Bk. 1979, p. 424, Vol. 8, 5-15-1979; Code 1983, § 860.06)

#### **Sec. 14-148. Exceptions.**

The provisions of this ordinance, except Section 14-143(d), shall not apply to any established society, labor union, any educational philanthropic, benevolent, fraternal, charitable, or reformatory purpose, not operated for pecuniary profits, where no part of the net earnings of which inures to the benefit of any person, private shareholders or individual, and where the solicitation of such organization shall be conducted by members or officers thereof voluntarily and without remuneration for such solicitation, or where such solicitation may be in the form of collections or contributions at the regular exercises of any church, religious society, lodge, labor union, benevolent order or fraternity or similar organization or any branch thereof.

#### **Secs. 14-149—14-170. Reserved.**



## **ARTICLE 4. SOLICITORS AND CANVASSERS<sup>1</sup>**

### ***DIVISION 1. GENERALLY***

#### **Sec. 14-121. Definitions.**

The following words, terms and phrases, when used in this article, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

*Solicitor* and *canvasser* mean an individual soliciting contributions or taking, or attempting to take, orders for the sale of goods, wares and merchandise or other personal property for future delivery or for services to be furnished or performed in the future, whether or not such individual has, carries or exposes for sale a sample of the subject of such sale, or whether or not he is collecting an advance payment on such sale. The term "solicitor" or "canvasser" includes any person who for himself, or for another person, hires, leases, uses or occupies a building or structure, whether permanent or temporary, or another place in the city, for the sole purpose of exhibiting samples and taking orders for future delivery. The term "solicitor" or "canvasser" does not include a person licensed to do business under the statutes of the state where there exists a state board or agency whose purpose is to regulate the conduct of its licensees.

(Min. Bk. 1979, p. 424, Vol. 8, 5-15-1979; Code 1983, § 860.01)

Cross reference(s)—Definitions generally, § 1-2.

#### **Secs. 14-122—14-140. Reserved.**

### ***DIVISION 2. PERMIT***

#### **Sec. 14-141. Required.**

No person shall engage in the activity of a solicitor or canvasser in the city without first obtaining a permit therefor in compliance with this article.

(Min. Bk. 1979, p. 424, Vol. 8, 5-15-1979; Code 1983, § 860.02)

---

<sup>1</sup>Cross reference(s)—Streets, sidewalks and other public places, ch. 66.

State law reference(s)—Home solicitation sales, MCL 445.111 et seq., MSA 19.416(201) et seq.; transient merchants, MCL 445.371 et seq., MSA 19.691 et seq.



---

#### **Sec. 14-142. Application and Fee.**

- (a) An applicant for a permit required under this article shall file with the city clerk a sworn application in writing ~~(in duplicate)~~ on a form to be furnished by the clerk, which shall give such information as required by the clerk and the chief of police.
- (b) A nonrefundable application review fee set annually by resolution of the city council shall be submitted with the application for a permit.

(Min. Bk. 1979, p. 424, Vol. 8, 5-15-1979; Code 1983, § 860.03)

#### **Sec. 14-143. Investigation; issuance or denial; contents; operations.**

- (a) Upon receipt of the application provided for in section 14-142, the application shall be referred to the chief of police, who shall cause such investigation of the applicant's background to be made as he deems necessary for the protection of the public good.
- (b) A permit issued under this article may be denied by the city clerk for any of the following reasons:
- (1) Fraud, misrepresentation or a false statement contained in the application for the permit; or
  - (2) A conviction of a crime or misdemeanor involving moral turpitude.
- (c) If a permit is approved, the city clerk shall execute a permit addressed to the applicant and deliver such permit to the applicant. Such permit shall contain the signature and seal of the clerk, the date of issuance and the length of time the permit is to be operative, as well as the permit number and other identifying description of a vehicle used in the soliciting or canvassing. The clerk shall keep a permanent record of all permits issued.
- (d) Soliciting and canvassing are not permitted within the City of Portage between sunset (according to the National Weather Service) or 9:00 p.m. (whichever is earlier) and 7:00 a.m. 8:00 p.m. and 8:00 a.m.

(Min. Bk. 1979, p. 424, Vol. 8, 5-15-1979; Code 1983, § 860.04)

#### **Sec. 14-144. Records of violations.**

- (a) Any public safety officer may require any person seen soliciting or canvassing and who is not known by such officer to be duly licensed, to show proof of a license issued by the city clerk, and to enforce the provisions of this ordinance against any person found to be violating them.
- (b) The chief of police shall report to the city clerk all convictions for violations of the provisions of this article, and the clerk shall maintain a record for each permit issued and record the reports of violation therein.

(Min. Bk. 1979, p. 424, Vol. 8, 5-15-1979; Code 1983, § 860.05)

#### **Sec. 14-145. Appeals.**

A person aggrieved by the action of the chief of police or the city clerk in the denial or revocation of a permit, as set forth in section 14-143 or section 14-147, may appeal to the council. Such appeal shall be taken by filing with the council, within 14 days after notice of the action complained of has been mailed to such person's last known address, a written statement setting forth fully the grounds for the appeal. The council shall set a time and place for a hearing on such appeal, and notice of such hearing shall be given to the appellant at his last known address by mail (postage prepaid) at least five days prior to the date set for the hearing.

---

(Min. Bk. 1979, p. 424, Vol. 8, 5-15-1979; Code 1983, § 860.07)

#### **Sec. 14-146. Expiration.**

A permit issued under this article shall be valid for not longer than one year.

(Min. Bk. 1979, p. 424, Vol. 8, 5-15-1979; Code 1983, § 860.08)

#### **Sec. 14-147. Revocation.**

A permit issued under this article may be revoked by the chief of police for any of the following reasons:

- (1) Fraud, misrepresentation or a false statement contained in the application for the permit;
- (2) Fraud, misrepresentation or a false statement made in the course of carrying on one's business as a solicitor or a canvasser;
- (3) A violation of any of the provisions of this article;
- (4) A conviction of a crime or misdemeanor involving moral turpitude; or
- (5) Conducting the business of soliciting or canvassing in an unlawful manner or in such a manner as to constitute a breach of the peace or a menace to the health, safety or general welfare of the public.

(Min. Bk. 1979, p. 424, Vol. 8, 5-15-1979; Code 1983, § 860.06)

#### **Secs. 14-148. Exceptions.**

The provisions of this ordinance, except for Section 14-143(d), shall not apply to any established society, labor union, any educational philanthropic, benevolent, fraternal, charitable, or reformatory purpose, not operated for pecuniary profits, where no part of the net earnings of which inures to the benefit of any person, private shareholders or individual, and where the solicitation of such organization shall be conducted by members or officers thereof voluntarily and without remuneration for such solicitation, or where such solicitation may be in the form of collections or contributions at the regular exercises of any church, religious society, lodge, labor union, benevolent order or fraternity or similar organization or any branch thereof.

#### **Secs. 14-149—14-170. Reserved.**

## GENERAL FEES

| Community           | Population | One Time Application Fee | One Day | One Week | One Month | Two Months | Three Months | Six Months | One Year | Additional Person | Deposit | Allowed Times                                                                 | Misc.                                                                                                                                                                                                                                              |
|---------------------|------------|--------------------------|---------|----------|-----------|------------|--------------|------------|----------|-------------------|---------|-------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Clare               | 3,272      |                          | \$10    | \$25     | \$75      |            | \$150        |            |          |                   |         | 9am - 5pm Monday - Saturday                                                   | \$15/2 days, \$20/3 days.                                                                                                                                                                                                                          |
| Williamston         | 3,800      | \$35                     | \$10    | \$20     | \$50      |            |              |            | \$150    |                   |         | 7am - 9pm                                                                     |                                                                                                                                                                                                                                                    |
| South Haven         | 4,049      | \$35                     |         |          |           |            |              |            |          |                   |         | 8am-10pm                                                                      |                                                                                                                                                                                                                                                    |
| Bloomfield Hills    | 4,431      | \$100                    |         |          |           |            |              |            |          |                   |         | 11am-7pm (SDT), 11am-5pm (EST)                                                | The Township's solicitation Ordinance, previously upheld by federal court, requires a permit from the Township Clerk (which the solicitor must carry) and restricts solicitation hours from 11:00 AM - 7:00 PM (SDT) and 11:00 AM - 5:00 PM (EST). |
| Chelsea             | 5,393      | \$10                     |         |          |           |            |              |            | \$10     |                   | \$1,000 | not defined                                                                   | Licenses are per person. All expire December 31 of issuing year.                                                                                                                                                                                   |
| Rockford            | 6,175      |                          |         | \$100    | \$150     |            |              | \$225      | \$325    |                   |         | not defined                                                                   |                                                                                                                                                                                                                                                    |
| Huntington Woods    | 6,326      | \$50                     |         |          |           |            |              |            |          |                   |         | 10am-9pm or sunset, whichever is earlier                                      | On foot: \$50/week or \$650 annually. In car: \$75/week or \$975/annually.                                                                                                                                                                         |
| Paw Paw             | 6,833      |                          | \$25    |          |           |            |              |            |          |                   |         | 9am - 9pm                                                                     | Fee is per person.                                                                                                                                                                                                                                 |
| Richland            | 8,735      | \$50                     |         |          |           |            |              |            |          |                   |         | not defined                                                                   |                                                                                                                                                                                                                                                    |
| Schoolcraft         | 9,156      |                          | \$10    |          |           |            |              |            |          |                   |         | 9am - 9pm                                                                     | Fee is per person.                                                                                                                                                                                                                                 |
| Flat Rock           | 10,441     |                          |         |          | \$50      |            |              |            | \$200    |                   |         | 9am-6pm Oct. 1 - April 30, 9am - 8pm May 1 - Sept 30                          | All permits expire at the end of the calendar year.                                                                                                                                                                                                |
| Grosse Ile          | 10,654     |                          |         |          | \$50      |            |              |            |          |                   |         | not defined                                                                   | \$40 per person for each additional 30 days.                                                                                                                                                                                                       |
| Ada Township        | 14,412     |                          |         |          | \$25      |            |              |            |          |                   |         | April 1 - Sept 30, 9am-7pm; Oct 1 - March 31, 9am-5pm                         | Application fee is per person. There is also a \$25 badge fee per person.                                                                                                                                                                          |
| DeWitt              | 15,323     | \$50                     |         |          | \$100     | \$200      | \$300        |            |          |                   |         | 9am-8pm Monday - Saturday                                                     | \$25 background check fee.                                                                                                                                                                                                                         |
| Traverse City       | 15,559     | \$10                     |         |          |           |            |              |            |          |                   |         | 9am-9pm or sunset, whichever is earlier, no Sundays or holidays               |                                                                                                                                                                                                                                                    |
| Grandville          | 15,953     |                          | \$25    | \$50     |           |            |              |            |          |                   |         | not defined                                                                   |                                                                                                                                                                                                                                                    |
| Grosse Pointe Woods | 16,226     |                          | \$10    |          | \$20      |            |              |            | \$75     |                   |         | 9am - 7pm or dusk whichever comes first                                       |                                                                                                                                                                                                                                                    |
| Fenton              | 16,961     |                          |         |          | \$30      |            |              | \$50       | \$75     |                   |         | 9am - 8pm, 11am - 6pm on Sundays                                              | \$50 investigation fee. All are per person. Issued either January - June or July - December.                                                                                                                                                       |
| Milford Township    | 17,017     | \$50                     |         |          |           |            |              |            |          |                   |         | 9am - 5pm Monday - Friday                                                     |                                                                                                                                                                                                                                                    |
| Highland            | 19,110     |                          |         |          |           |            |              |            |          |                   | \$5,000 | 8am - 9pm                                                                     | Deposit only for out-of-state vendors.                                                                                                                                                                                                             |
| Cascade             | 19,701     | \$25                     |         |          | \$15      |            |              |            |          |                   |         | April 1 - Sept 30, 9am-7pm; Oct 1 - March 31, 9am-5pm                         |                                                                                                                                                                                                                                                    |
| Oakland Township    | 20,177     |                          |         |          |           |            |              | \$100      |          |                   |         | 9am-9pm                                                                       | Per person                                                                                                                                                                                                                                         |
| Genoa Township      | 20,831     | \$200                    |         |          |           |            |              |            | \$20     |                   |         | not defined                                                                   |                                                                                                                                                                                                                                                    |
| Walker              | 25,153     | \$25                     | \$25    |          | \$200     |            |              | \$400      | \$600    |                   |         | April 1 - Sept 30, 9am - 7pm, Oct 1 - March 31, 9am - 5pm                     | Application fee is per person.                                                                                                                                                                                                                     |
| Northville          | 31,587     | \$225                    |         |          |           |            |              |            |          |                   | \$500   | 10am - 6pm                                                                    |                                                                                                                                                                                                                                                    |
| Bay City            | 32,404     |                          | \$10    | \$20     | \$40      |            |              |            | \$100    | \$51              |         | 7am and sunset                                                                |                                                                                                                                                                                                                                                    |
| Muskegon            | 37,552     |                          |         |          |           |            |              |            | \$150    |                   | \$1,000 | 9am - 8pm or sunset, whichever is earlier                                     | All permits expire on or before May 1. Deposit required for pre-sales.                                                                                                                                                                             |
| Holland             | 39,450     |                          | \$50    |          |           |            |              |            |          |                   |         |                                                                               | During Tulip Time                                                                                                                                                                                                                                  |
| Holland             | 39,451     |                          |         |          |           |            |              |            |          |                   |         | 10 am - one hour before sunset                                                | \$15 background check (annual/per person). On foot \$100 annual, \$60.00 semi-annual. From vehicle \$140 annual, \$80 semi-annual.                                                                                                                 |
| Saginaw             | 41,443     |                          |         |          | \$50      |            |              |            |          |                   |         | 9am-dusk/8pm Monday - Saturday, 11am-6pm Sunday                               |                                                                                                                                                                                                                                                    |
| Midland             | 42,422     |                          |         |          |           |            |              |            | \$20     |                   |         | None after daylight hours                                                     |                                                                                                                                                                                                                                                    |
| East Lansing        | 46,854     |                          | \$6     | \$21     |           |            |              |            | \$51     | \$6               | \$500   | 9am -9pm                                                                      |                                                                                                                                                                                                                                                    |
| Battle Creek        | 52,335     | \$50                     |         |          |           |            |              |            |          | \$10              |         | 9am - sunset                                                                  | Annual fee includes one month. Each additional month is \$20.                                                                                                                                                                                      |
| Georgetown Township | 54,511     | \$50                     |         |          |           |            |              |            |          |                   | \$50    | 9am - 8pm                                                                     |                                                                                                                                                                                                                                                    |
| Ypsilanti           | 55,499     |                          |         |          |           |            |              |            | \$100    |                   |         | 9am - 9pm, no holidays                                                        |                                                                                                                                                                                                                                                    |
| Novi                | 66,560     | \$35                     |         |          |           |            |              |            |          |                   |         | 9am - 9pm or dusk, whichever is earlier                                       |                                                                                                                                                                                                                                                    |
| Waterford           | 70,131     | \$50                     |         |          |           |            |              |            |          | \$10              |         | not defined                                                                   |                                                                                                                                                                                                                                                    |
| Rochester           | 76,028     |                          |         |          |           |            |              |            | \$100    |                   |         | 9am - 7pm (DST), 9am - 5pm (EST)                                              |                                                                                                                                                                                                                                                    |
| Farmington Hills    | 83,292     | \$50                     |         |          |           |            |              |            |          |                   |         | 10am - 8pm or sunset, whichever is earlier                                    |                                                                                                                                                                                                                                                    |
| Troy                | 86,836     | \$24                     |         | \$20     | \$40      |            |              |            | \$100    |                   |         | Oct 1 - March 31 9am - 6pm, April 1 - Sept 30, 9am - 8pm                      |                                                                                                                                                                                                                                                    |
| Lansing             | 112,684    | \$125                    |         |          |           |            |              |            |          |                   | \$1,000 | 9am - 8pm or sunset, whichever is earlier                                     | Background check for each person \$25.                                                                                                                                                                                                             |
| Ann Arbor           | 121,536    |                          |         |          |           |            |              | \$45       |          |                   |         | 10am-official sunset time, no Sundays or holidays, no UofM football game days | Either May - October or November - April                                                                                                                                                                                                           |

| Community              | Population | Fee  | Application | Allowed Times                                                   | Other                                                                                                                                                                                                                                    |
|------------------------|------------|------|-------------|-----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| West Branch            | 2,582      | none | yes         | 10am-sunset, no Sundays or holidays                             |                                                                                                                                                                                                                                          |
| Huntington Woods       | 6,382      | none | yes         | 10am-9pm or sunset, whichever is earlier                        |                                                                                                                                                                                                                                          |
| Plymouth Township      | 9,313      | none | no          | 8am-sundown, no Sundays or holidays                             | Philanthropic or charitable organizations where sale and/or solicitation has been approved by the city manager or city commission.                                                                                                       |
| Tittabawassee Township | 10,599     | none | yes         | not defined                                                     | Permit is valid for seven days.                                                                                                                                                                                                          |
| Ada Township           | 14,412     | none | no          | April 1 - Sept 30, 9am-7pm; Oct 1 - March 31, 9am-5pm           | Register with the township with name, address, driver's license for those soliciting. Evidence of soliciting for religious or non-profit.                                                                                                |
| DeWitt                 | 15,323     | none | yes         | 9am-8pm Monday - Saturday                                       |                                                                                                                                                                                                                                          |
| Traverse City          | 15,559     | none | yes         | 9am-9pm or sunset, whichever is earlier, no Sundays or holidays | Proof of tax exemption, but have background check if soliciting in a residential area.                                                                                                                                                   |
| Scio Township          | 17,737     | none | yes         | 10am-sunset, no Sundays or holidays                             |                                                                                                                                                                                                                                          |
| Cascade                | 19,504     | none | yes         | April 1 - Sept 30, 9am-7pm; Oct 1 - March 31, 9am-5pm           |                                                                                                                                                                                                                                          |
| Oakland Township       | 20,177     | none | no          | 9am-9pm                                                         | Written notification given to Clerk at least 30 days in advance of solicitation. Must provide proof that the organization is legitimate, describe in detail the activity to take place, goods/merchandise for sale, list of individuals. |
| Genoa Township         | 20,831     | none | no          | not defined                                                     |                                                                                                                                                                                                                                          |
| Huron Township         | 29,009     | none | yes         | sunrise - sunset                                                |                                                                                                                                                                                                                                          |
| Northville             | 31,587     | none | yes         | 10am - 6pm                                                      |                                                                                                                                                                                                                                          |

## NON-PROFITS

|                       |         |                         |     |                                                                                        |                                                                                                                                                                                                               |
|-----------------------|---------|-------------------------|-----|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Independence Township | 36,639  | \$25                    | yes | 9am-4:30pm<br>Monday - Friday,<br>daylight hours<br>Saturday - Sunday                  |                                                                                                                                                                                                               |
| Muskegon              | 37,552  | none                    | yes | 9am - 8pm or<br>sunset, whichever is<br>earlier                                        | Charity must be fully registered in the State of Michigan. Any merchandise is described in full and examples are submitted with application.                                                                  |
| Saginaw               | 41,443  | Background<br>check fee | yes | 9am-dusk/8pm<br>Monday - Saturday,<br>11am-6pm Sunday                                  |                                                                                                                                                                                                               |
| Midland               | 42,422  | none                    | yes | None after daylight<br>hours                                                           | Persons soliciting on foot in their neighborhood of residence for nonprofit, education, fraternal, charitable, or religious organization with headquarters or a local chapter in the Midland area are exempt. |
| East Lansing          | 47,427  | \$500 bond              | yes | 9am -9pm                                                                               |                                                                                                                                                                                                               |
| St. Clair Shores      | 59,046  | none                    | yes | 9am - 8pm                                                                              |                                                                                                                                                                                                               |
| Farmington Hills      | 83,292  | none                    | yes | 10am - 8pm or<br>sunset, whichever is<br>earlier                                       | No more than one organization in city at a time, and no more than three consecutive days.                                                                                                                     |
| Ann Arbor             | 121,536 | none                    | yes | 10am-official sunset<br>time, no Sundays or<br>holidays, no UofM<br>football game days |                                                                                                                                                                                                               |



**CITY OF PORTAGE  
RESOLUTION ESTABLISHING FEES FOR  
SOLICITOR'S PERMIT**

At a regular meeting of the Council of the City of Portage, Kalamazoo County, Michigan, held at the City Hall in said City on the \_\_\_\_\_ day of \_\_\_\_\_, 2023 at 7:00 p.m., local time.

PRESENT: \_\_\_\_\_

ABSENT: \_\_\_\_\_

The following resolution was offered by:

Councilmember: \_\_\_\_\_, and seconded by:

Councilmember: \_\_\_\_\_.

WHEREAS, the City Council, pursuant to Section 14, Article 4 (Solicitors and Canvassers) of the City of Portage Code of Ordinances, it is necessary for the City Council to establish by resolution fee(s) for permits.

WHEREAS, all applications that are submitted pursuant to this Ordinance shall be accompanied by a non-refundable, per person license fee, with the purpose of the fee to cover the administrative costs associated with processing the application, including but not limited to conducting and reviewing the background checks, and regulating solicitors within the City.

NOW, THEREFORE BE IT RESOLVED THAT: the following fees are hereby established for solicitor's permits in the City of Portage:

- a. annual application fee of \$50.00 per entity for the first applicant;
- b. additional \$10.00 fee for each additional applicant under said entity;
- c. non-profit organizations shall not be charged a permit fee.

BE IT FURTHER RESOLVED THAT, all resolutions and/or parts of resolutions insofar as they conflict with the provisions of this resolution are hereby rescinded.

ADOPTED:

ADOPTED:

YEAS: Councilmember: \_\_\_\_\_

NAYS: Councilmember: \_\_\_\_\_

ABSENT: Councilmember: \_\_\_\_\_

\_\_\_\_\_  
Erica Eklov, City Clerk

CERTIFICATION

STATE OF MICHIGAN       )  
                                          ) ss  
COUNTY OF KALAMAZOO    )

I, the undersigned, the duly qualified and acting City Clerk of the City of Portage, County of Kalamazoo, State of Michigan, do hereby certify that the foregoing is a true and complete copy a resolution adopted a regular meeting of the City Council of said city, held on the \_\_\_\_\_ day of \_\_\_\_\_, 2023, the original of which is on file in my office.

IN WITNESS THEREOF, I have hereto affixed my official signature this of \_\_\_\_\_ day of \_\_\_\_\_, 2023.

\_\_\_\_\_  
Erica L. Eklov, City Clerk

