

Inventory & Analysis

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Traffic Generators and Mobility Patterns2
Community Demographics
Existing Facilities and Proposed Improvements
Bicycle and Pedestrian Crash Data
Summary Analysis
Policy, Program and Metrics Evaluation

Traffic Generators and Mobility Patterns



The map highlights the key destinations for residents of the City. It is important to recognize the trip-making relationship these destinations have to the residential developments across the City. Residents often travel to these key destinations for leisure, work, shopping, and other purposes. Understanding the trip-making relationship between residential developments and key destinations can help cities better plan transportation services and infrastructure to ensure that residents can access these important areas. Additionally, understanding these trip-making relationships can help cities plan better urban development and improve access to essential services and resources



Pedestrian Travel

Source: STRAVA

Link: https://www.strava.com/heatmap#11.92/-83.51996/42.45792/bluered/run

The heatmap shows popular routes made by aggregated, public activities over the last year. The heat map is made up of trillion of data points visualizing the information of users who submitted or synchronized their fitness activity to their servers. This data includes both fitness information recorded directly on the fitness app and data synchronized with the app from a number of physical fitness trackers. The heatmap is a snapshot of historical data and is not updated in realtime. The heatmap is updated monthly.



Bicycle Travel

Source: STRAVA

Link: https://www.strava.com/heatmap#11.92/-83.51996/42.45792/bluered/ride

The heatmap shows popular routes made by aggregated, public activities over the last year. The heat map is made up of trillion of data points visualizing the information of users who submitted or synchronized their fitness activity to their servers. This data includes both fitness information recorded directly on the fitness app and data synchronized with the app from a number of physical fitness trackers. The heatmap is a snapshot of historical data and is not updated in realtime. The heatmap is updated monthly.



National Walkability Index

Source: EPA Smart Location Database Link: https://www.policymap.com

National walkability index in 2021. The National Walkability Index identifies areas with mixtures of land use and transportation infrastructure that may encourage walking as a mode of transportation. This index is comprised of four ranked measures: intersection density, distance to the nearest transit stop, employment diversity, and employment and housing diversity. More walkable areas rate higher on intersection density, have lower distances to the nearest transit stop, and have higher employment and employment plus housing diversity. The Environmental Protection Agency's (EPA) Smart Location Database was created to address the demand for tools that compare location efficiency. The Smart Location Database (SLD) summarizes several demographic, employment, and built environment variables for every Census block group.



Economic and Residential Development Density

Source: EPA Smart Location Database Link: https://www.policymap.com

Ranking of economic and residential development density in 2021. Employment and housing diversity expressed on a scale of 1 to 20, where 1 is the least diverse and 20 is the most diverse. This measure comprises one of the four components of the National Walkability Index. The Environmental Protection Agency's (EPA) Smart Location Database was created to address the demand for tools that compare location efficiency. The Smart Location Database (SLD) summarizes several demographic, employment, and built environment variables for every Census block group.



Street Intersection Density

Source: EPA Smart Location Database Link: https://www.policymap.com

Ranking of street intersection density in 2021. Street intersection density expressed on a scale of 1 to 20, where 1 is the least dense and 20 is the most dense. This measure comprises one of the four components of the National Walkability Index. The Environmental Protection Agency's (EPA) Smart Location Database was created to address the demand for tools that compare location efficiency. The Smart Location Database (SLD) summarizes several demographic, employment, and built environment variables for every Census block group.



Economic Diversity

Source: EPA Smart Location Database Link: https://www.policymap.com

Ranking of economic diversity in 2021. Economic diversity expressed on a scale of 1 to 20, where 1 is the least diverse and 20 is the most diverse. This measure comprises one of the four components of the National Walkability Index. The Environmental Protection Agency's (EPA) Smart Location Database was created to address the demand for tools that compare location efficiency. The Smart Location Database (SLD) summarizes several demographic, employment, and built environment variables for every Census block group



Demand Areas

Source: SEMCOG

Link: https://bicycle-and-pedestrian-mobility-maps-semcog.hub.arcgis.com/pages/equity-and-demand-analysis

Bicycle and Pedestrian Demand has been assessed in three categories. High Demand Areas are likely to be the most bicycle and pedestrian friendly parts of the region, or those with the most potential to support more people walking and biking. They include larger downtown commercial districts, employment centers, and most densely populated areas. Moderate Demand Areas include many of the region's smaller town centers, as well as areas adjacent to high demand areas. They are primarily residential areas, with commercial development along major roadways and intersections. These places are likely to support walking and biking, but in many cases driving is still necessary for daily trips. Potential Demand Areas tend to be less densely populated with people or destinations, but have clusters of activity that may support walking and biking if adequate infrastructure exists.



Equity Emphasis Area

Source: SEMCOG

Link: https://bicycle-and-pedestrian-mobility-maps-semcog.hub.arcgis.com/pages/equity-and-demand-analysis

SEMCOG's equity populations are based on the cumulative score across five socioeconomic indicators - children, low-income households, minority populations, senior citizens, and transit dependent households. The darkest shaded blue areas show the highest concentrations of populations who likely rely more heavily on walking or biking; while the yellow-shaded areas represent the lowest concentration of populations who likely rely on these modes to meet their needs. The two highest concentrations are deemed Equity Emphasis Areas. Within these areas, access to existing pedestrian and bicycle infrastructure was measured to identify areas that are beyond 100 feet from the nearest sidewalk or shared-use path, beyond one-half mile from the nearest bicycle infrastructure, and beyond both 100 feet from the nearest sidewalk or shared-use path and onehalf mile from nearest bicycle infrastructure.



Equity and Demand Analysis

Source: SEMCOG

Link: https://bicycle-and-pedestrian-mobility-maps-semcog.hub.arcgis.com/pages/equity-and-demand-analysis

This analysis map that shows the highest concentration of equity populations and demand areas. SEMCOG identified populations (and areas) of the region through an equity lens based on socioeconomic factors that may impact their mobility. This includes children, low-income populations, minority populations, seniors, and transit-dependent households.



Environmental Justice Sensitivity

Source: City of Novi

Modeled after the City of Albany, New Yorks equity analysis and based on SEMCOG's Equity Emphasis Areas for the City of Novi.



Access to Parks: Walking

Source: SEMCOG

Link: https://maps.semcog.org/accessparks/?amenity=All_Access_ Points&mode=walk_amenity_access&mcd=2170

This analysis was conducted by measuring travel times between the region's parks and households through the transportation mode of walking. Reasonable transportation modes and travel times to different types of parks were established with input from the Parks and Recreation Task Force. These specify different measures for recreational amenities that serve as community assets, as regional destinations, or as both. For parks greater than six acres in size, all points of entry for walking, biking, and driving were used to measure their accessibility. This data does not capture other local conditions that may be barriers to park access, such as crime, safety concerns, and sidewalks infrastructure or maintenance. It is important to consider the local context for these limitations when applying this analysis in local decision-making.



Access to Parks: Biking

Source: SEMCOG

Link: https://maps.semcog.org/accessparks/?amenity=All_Access_ Points&mode=bike_amenity_access&mcd=2170

This analysis was conducted by measuring travel times between the region's parks and households through the transportation mode of biking. Reasonable transportation modes and travel times to different types of parks were established with input from the Parks and Recreation Task Force. These specify different measures for recreational amenities that serve as community assets, as regional destinations, or as both. For parks greater than six acres in size, all points of entry for walking, biking, and driving were used to measure their accessibility. This data does not capture other local conditions that may be barriers to park access, such as crime, safety concerns, and sidewalks infrastructure or maintenance. It is important to consider the local context for these limitations when applying this analysis in local decision-making.



Access to Parks: Riding Transit

Source: SEMCOG

Link: https://maps.semcog.org/accessparks/?amenity=All_Access_ Points&mode=transit_amenity_access&mcd=2170

This analysis was conducted by measuring travel times between the region's parks and households through the transportation mode of riding transit. Reasonable transportation modes and travel times to different types of parks were established with input from the Parks and Recreation Task Force. These specify different measures for recreational amenities that serve as community assets, as regional destinations, or as both. For parks greater than six acres in size, all points of entry for walking, biking, and driving were used to measure their accessibility. This data does not capture other local conditions that may be barriers to park access, such as crime, safety concerns, and sidewalks infrastructure or maintenance. It is important to consider the local context for these limitations when applying this analysis in local decision-making.



Access to Parks: Driving

Source: SEMCOG

Link: https://maps.semcog.org/accessparks/?amenity=All_Access_ Points&mode=bike_amenity_access&mcd=2170

This analysis was conducted by measuring travel times between the region's parks and households through the transportation mode of driving. Reasonable transportation modes and travel times to different types of parks were established with input from the Parks and Recreation Task Force. These specify different measures for recreational amenities that serve as community assets, as regional destinations, or as both. For parks greater than six acres in size, all points of entry for walking, biking, and driving were used to measure their accessibility. This data does not capture other local conditions that may be barriers to park access, such as crime, safety concerns, and sidewalks infrastructure or maintenance. It is important to consider the local context for these limitations when applying this analysis in local decision-making.



Modal Prioritization - Land Use Context

Source: SEMCOG 2020

Link: https://gis.semcog.org/portal/apps/webappviewer/index. html?id=a4ace662f6ea4a538c53202ff19b847a

Building height, proximity to other buildings, and setback were considered when categorizing main streets (traditional downtowns), walkable thoroughfares, and small town hamlets. Community master plans and zoning maps were used to identify aspirational main streets and walkable thoroughfares. The urban, suburban, and rural land uses were determined using TAZ (transportation analysis zone) area type designation from SEMCOG's Travel Demand Model. Urban land use and walkable thoroughfares were combined because they have the same modal prioritization in the Multimodal Tool.



Modal Prioritization - Bicycle and Pedestrian Demand

Source: SEMCOG

Link: https://semcog.org/mmtool

Modal tiers indicate how important a road segment is in the modal network. Tier 1 indicates streets that are of the highest importance for carrying people using a certain mode. Tier 2 streets are of secondary importance, and Tier 3 streets are of tertiary importance. Modal priorities are intended to provide guidance but may vary based on special circumstances, local priorities, and MDOT input on trunklines.



SMART Bus Stops

Source: City of Detroit Link: https://data.detroitmi.gov/ datasets/6ec0b22bc67e4068af4c2f09cb7f31b4_0/ explore?location=42.430630%2C-83.082476%2C10.11

Suburban Mobility Authority for Regional Transportation (SMART) bus stops in Southeast Michigan for 2019. Currenlty, SMART does not service the City of Novi.



Population Density

Source: Census

Link: https://maps.semcog.org/2020census/?mcd=2170&geotype=blocks

SEMCOG's map displays 2020 census results for every geographic unit in Southeast Michigan.



Building Footprints

Source: SEMCOG Link: https://maps.semcog.org/ BuildingFootprints/#15.01/42.33185/-83.04886/-40.1/59

SEMCOG's building footprint data layer represents the digital footprint of each building in Southeast Michigan, as of April 2020, along with associated attributes of each building. SEMCOG's building types are based on the 2017 North American Industrial Classification System (NAICS). To be considered a building, a structure must contain either a housing unit or a minimum of 250 square feet of nonresidential workspace.



Residential Building Types

Source: SEMCOG



Existing Land Use Source: City of Novi Link: https://cityofnovi.org/community/map-gallery



Future Land Use Source: City of Novi Link: https://cityofnovi.org/community/map-gallery



Employment Density

Source: SEMCOG Link: https://maps.semcoq.org/EmploymentDensity/

This map displays employment by Traffic Analysis Zone, or TAZ (which are small areas within a community), including hot spots for areas of high concentration of employment. The source of the employment data is a cooperative effort between SEMCOG and Michigan Department of Transportation (MDOT) to create local employment estimates. The employment data represents total full-time and parttime employment for year 2015 including both wage and salary jobs, as well as selfemployed jobs. The estimates are approximately equivalent to employment data as defined by the Bureau of Economic Analysis (BEA). For more information about BEA's job definitions, see section VIII (Employment) in BEA's Local Area Personal Income Methodology). This map only displays select industry sectors. However, "Total Jobs" represents jobs in all sectors including those not listed in our industry sector filter. The sectors generally follow the North American Industry Classification System (NAICS).



Traffic Volume

Source: SEMCOG Link: https://maps.semcog.org/trafficvolume/

SEMCOG's traffic volume map represents Average Annual Daily Traffic (AADT) for roads in Southeast Michigan that are eligible for Federal Funds. The Annual Average Daily Traffic (AADT) is a measurement of the amount of vehicle traffic on a particular roadway segment. There are three types of AADTs represented: observed, interpolated, and default. Observed AADTs are actual counts taken on the segment, while interpolated AADTs are calculated based on adjacent counts. Default AADTs are calculated based on a combination of factors such as the county, number of lanes, and functional class of the roadway segment.





Commuting Patterns - Outflow 2016

Source: SEMCOG

Link: https://maps.semcog.org/

CommutingPatterns/?semmcd=2170&direction=outflow&year=2016

SEMCOG's Commuting Patterns map illustrates travel to work patterns, showing the connections between business and the labor market of the region's workforce, for all of region's communities for years 2016 and 2010. The data presented in the map is based on Census Transportation Planning Products (CTPP) tabulations of Census Bureau's 5-year American Community Survey (ACS) data. Data for 2010 represents 2006-2010 5-year CTPP data and the data for 2016 is from 2012-2016 5-year CTPP data.

Commuting Patterns - Inflow 2016

Source: SEMCOG Link: https://maps.semcog.org/ CommutingPatterns/?semmcd=2170&direction=inflow&year=2016

SEMCOG's Commuting Patterns map illustrates travel to work patterns, showing the connections between business and the labor market of the region's workforce, for all of region's communities for years 2016 and 2010. The data presented in the map is based on Census Transportation Planning Products (CTPP) tabulations of Census Bureau's 5-year American Community Survey (ACS) data. Data for 2010 represents 2006-2010 5-year CTPP data and the data for 2016 is from 2012-2016 5-year CTPP data.



Wetlands Source: City of Novi Link: https://cityofnovi.org/community/map-gallery

Community Demographics



Percent of People who Are Foreign Born

Source: Census Link: https://www.policymap.com

Estimated percent of population who are foreign born, as reported between 2016-2020. The U.S. Census defines "foreign born" to refer to anyone who is not a U.S. citizen at birth. This includes naturalized U.S. citizens, lawful permanent residents (immigrants), temporary migrants (such as students), humanitarian migrants (such as refugees), and persons illegally present in the United States.



Predominate Country of Foreign Born Population

Source: Census Link: https://www.policymap.com

Predominant country of birth among the foreign born population between 2014-2018. This does not include the foreign born population born at sea.



Diversity Index Source: Census & Policy Map

Link: https://www.policymap.com

Probability that two individuals chosen at random would be of different races or ethnicities, between 2016-2020. The diversity index is an index ranging from 0 to 87.5 that represents the probability that two individuals, chosen at random in the given geography, would be of different races or ethnicities between 2016-2020. Lower index values between 0 and 20 suggest more homogeneity and higher index values above 50 suggest more heterogeneity. Racial and ethnic diversity can be indicative of economic and behavioral patterns. For example, racially and ethnically homogeneous areas are sometimes representative of concentrated poverty or concentrated wealth. They could also be indicative of discriminatory housing policies or other related barriers. Data were obtained from the Census' American Community Survey 2016-2020 estimates and calculated by PolicyMap. Geographies for which no data were provided or for which the population was less than 10 are represented as having "Insufficient Data."



People Living in Poverty Source: Census 2016-2020 Link: https://www.policymap.com



Estimated Median Income of a Household Source: Census 2016-2020 Link: https://www.policymap.com



Transportation Affordability for Low-Income Individuals

Source: HUD

Link: https://www.policymap.com

Percent of income spent on transportation by a very low-income individual household, as of 2019. According to this data, a "very low-income individual" household has 1 person, an income at the national poverty line, and 1 commuter. The Location Affordability Index (LAI) provides standardized household housing and transportation cost estimates at the neighborhood level. Since housing and transportation costs typically consume about half of the average household budget, these offer a useful tool for evaluating where people decide to live and work, where to locate resources or facilities, and areas of potential economic distress.



Transportation Affordability for Median-Income Family Households

Source: HUD

Link: https://www.policymap.com

Percent of income spent on transportation by a median-income family household, as of 2019. According to this data, a "median-income family" household has 4 people, the median income for the region, and 2 commuters. The Location Affordability Index (LAI) provides standardized household housing and transportation cost estimates at the neighborhood level. Since housing and transportation costs typically consume about half of the average household budget, these offer a useful tool for evaluating where people decide to live and work, where to locate resources or facilities, and areas of potential economic distress.



Multi-modal Road Network Density

Source: EPA Smart Location Database Link: https://www.policymap.com

This was calculated by dividing the number of roadway links from intersection to intersection by the land area of the block group. Multi-modal roadways exclude auto-oriented roadways, and include roadways with moderate to low speeds. The Environmental Protection Agency's (EPA) Smart Location Database was created to address the demand for tools that compare location efficiency. The Smart Location Database (SLD) summarizes several demographic, employment, and built environment variables for every Census block group.



Pedestrian-oriented Road Network Density

Source: EPA Smart Location Database Link: https://www.policymap.com

Pedestrian-oriented road network density in 2021. This was calculated by dividing the number of roadway links from intersection to intersection by the land area of the block group. Pedestrian-oriented roadways exclude autooriented roadways, and include roadways with low speeds and pathways or trails that prohibit automobiles. The Environmental Protection Agency's (EPA) Smart Location Database was created to address the demand for tools that compare location efficiency. The Smart Location Database (SLD) summarizes several demographic, employment, and built environment variables for every Census block group.



No Vehicles Available per Household

Source: Census Link: https://www.policymap.com

Estimated percent of occupied housing units for which no vehicles are available in 2016-2020. Percentage calculations are suppressed in cases where the denominator of the calculation was less than 10 of the unit that is being described (e.g., households, people, householders, etc.)



Average Number of Vehicles per Household

Source: Census Link: https://www.policymap.com

Estimated average number of motor vehicles per household in 2016-2020. The number of motor vehicles is defined as the number of vehicles (cars, vans, etc.) available to a household



Commute to Work using Public Transit

Source: Census Link: https://www.policymap.com

Estimated percent of workers age 16 years or older who did not work at home who commuted to work using public transit in 2016-2020. Percentage calculations are suppressed in cases where the denominator of the calculation was less than 10 of the unit that is being described (e.g., households, people, householders, etc.)



Commute to Work by Walking

Source: Census Link: https://www.policymap.com

Estimated percent of workers age 16 years or older who did not work at home who commuted to work by walking in 2016-2020. Percentage calculations are suppressed in cases where the denominator of the calculation was less than 10 of the unit that is being described (e.g., households, people, householders, etc.).



Commute to Work by Bicycle

Source: Census Link: https://www.policymap.com

Estimated percent of workers age 16 years or older who did not work at home who commuted to work by bicycle in 2016-2020. Percentage calculations are suppressed in cases where the denominator of the calculation was less than 10 of the unit that is being described (e.g., households, people, householders, etc.) SEMCOG Equity Emphasis Data https://semcog.org/about-semcog/diversity-equity-and-inclusion





Existing Facilities and Proposed Improvements



Pathways and Sidewalks Inventory

Source: City of Novi Link: https://cityofnovi.org/community/ride-and-walk-novi

Encouraging healthy, active lifestyles through pathway and sidewalk connectivity has been a focus for the City of Novi. The City is a four-time Promoting Active Communities Gold Award winner from the Governor's Council on Physical Fitness due to the existing and planned public pedestrian and bicycle facilities. Currently the City has over 200 miles of pathways and sidewalks



On-Road Bicycle Quality Routes Source: City of Novi Link: https://cityofnovi.org/community/ride-and-walk-novi



Biannual Nonmotorized Prioritization: 2022-2024 Update

Source: City of Novi

Link: https://cityofnovi.org/community/ride-and-walk-novi

The City of Novi has a procedure for identifying and completing missing sidewalk and pathway segments. The planning and prioritization of sidewalk construction starts with City Staff, who compile data, perform analysis, and tally rankings, which is presented annually as a comprehensive report to the Walkable Novi Committee. The prioritization is an important tool to help determine how the limited funds budgeted for pathway construction will be best utilized. The Committee produces a list of the Top 20 segments that are recommended to be used to develop the 6-year Capital Improvement Program, which lists the future sidewalk and pathway projects for the City to construct. As segments are constructed, either as public projects or by private developers, they are removed from the list. The Walkable Novi Committee reviewed and approved the draft 2022-2024 Nonmotorized Prioritization Update on August 18, 2022 and recommended forwarding it to the City's Capital Improvement Committee.



SEMCOG Existing Bikeway Network

Source: SEMCOG

Link: https://maps.semcog.org/bikepednetwork/?entry=2

A bikeway is a road, street, or path designated for bicycle travel, regardless if such infrastructure is for the exclusive use of bicycles or is to be shared with other transportation modes. The Existing Bikeway Network map shows three classes of bikeways: (1) Shared-Use Paths, (2) Bike Lanes, (3) Other Bikeways. Other Bikeways are defined as rural wide paved shoulders, shared-lane markings, and local, county, or national bike routes.



SEMCOG Bicycle Comfort Level

Source: SEMCOG

Link: https://maps.semcog.org/bikepednetwork/?entry=2

In addition to the region's bikeways and trails, people who bike are allowed on almost all roads in Southeast Michigan, except freeways. However, some roads will have greater appeal to people due to their bicycling comfort level. This map shows the entire bicycling network (bikeways, trails and roads) by four tiers of biking comfort.



SEMCOG Existing Pedestrian Network

Source: SEMCOG

Link: https://maps.semcog.org/bikepednetwork/?entry=2

This map includes three aspects of the existing pedestrian network: (1) sidewalks and shared-use paths (typically along roadways, but may follow their own path, and ranging in widths from less than 5' to greater than 10'); (2) marked crosswalks (typically highly visible pavement markings or striping either at an intersection or midblock crossing location); (3) unmarked crosswalks (typically at intersections and areas where a roadway bisects two sidewalks). This dataset was created utilizing an automated AI digitization process via high resolution satellite imagery. Communities should contact SEMCOG staff with any errors or updates to the data.



SEMCOG Planned Bicycle and Pedestrian Mobility Network

Source: SEMCOG

Link: https://maps.semcog.org/bikepednetwork/?entry=2

This map identifies planned bicycle and pedestrian infrastructure and bike routes that are documented in existing county and community plans. Often times the corridor has been identified, but the specific treatment has not yet been defined. Undefined infrastructure could include shared use paths, sidewalks, bike lanes, shared-lane markings, or rural wide paved shoulders. While SEMCOG makes every attempt to show the most up-to-date planned facilities and infrastructure, some segments may not necessarily reflect current community planning priorities.



SEMCOG Regional Planning Network

Source: SEMCOG

Link: https://maps.semcog.org/bikepednetwork/?entry=2

Regional trails are primarily shared-use paths that are physically separated from vehicle traffic. In some cases, trails may include a connecting route where other walking or biking infrastructure provides a link between two off-road paths. In all cases, they are regional in nature, providing linear connections between communities and counties. While the planned trail network serves as the primary arteries for regional connectivity, it also includes spurs that connect to local networks and destinations. Regional trails accommodate a range of users in addition to people walking and biking, including runners, skaters, equestrians, and even low-speed electric vehicles. They typically have wayfinding signage and branding, which helps provide navigational resources and a consistent experience for trail users. They also often feature amenities that enhance the trail experience, including trailheads with parking, restrooms, or picnic areas along a route.

Bicycle and Pedestrian Crashes



Pedestrian Crashes

Source: SEMCOG 2017-2021 Link: https://maps.semcog.org/CrashLocations/

SEMCOG's crash location map represents locations of reported crashes on roads in Southeast Michigan that are included in the Michigan Geographic Framework (MGF) Version 16. Crashes that occurred in other locations not in the MGF are not shown on this map. Locations where multiple crashes overlap are shaded darker. Road Characteristics represent most recent data available, not based on crash year. For example if you select crashes from 2014 the national functional class, number of lanes and surface type will be the most recent data, not what it was in 2014. Traffic crash data used in SEMCOG's crash location map were received from the Michigan State Police, Criminal Justice Information Center (CJIC).



Bicycle Crashes

Source: SEMCOG 2017-2021 Link: https://maps.semcoq.org/CrashLocations/

SEMCOG's crash location map represents locations of reported crashes on roads in Southeast Michigan that are included in the Michigan Geographic Framework (MGF) Version 16. Crashes that occurred in other locations not in the MGF are not shown on this map. Locations where multiple crashes overlap are shaded darker. Road Characteristics represent most recent data available, not based on crash year. For example if you select crashes from 2014 the national functional class, number of lanes and surface type will be the most recent data, not what it was in 2014. Traffic crash data used in SEMCOG's crash location map were received from the Michigan State Police, Criminal Justice Information Center (CJIC).



All Crashes

Source: SEMCOG 2017-2021 Link: https://maps.semcog.org/CrashLocations/

SEMCOG's crash location map represents locations of reported crashes on roads in Southeast Michigan that are included in the Michigan Geographic Framework (MGF) Version 16. Crashes that occurred in other locations not in the MGF are not shown on this map. Locations where multiple crashes overlap are shaded darker. Road Characteristics represent most recent data available, not based on crash year. For example if you select crashes from 2014 the national functional class, number of lanes and surface type will be the most recent data, not what it was in 2014. Traffic crash data used in SEMCOG's crash location map were received from the Michigan State Police, Criminal Justice Information Center (CJIC).



Pedestrian High-Priority Safety Locations

Source: SEMCOG 2016-2020 Link: https://maps.semcoq.org/safety/

SEMCOG's systemwide safety analysis uses five years of traffic crash data. The safety performance of the road network is measured using methods from the AASHTO Highway Safety Manual. Each facility (segment, intersection, and roundabout) is evaluated by examining the historical traffic crash rate, based on the Annual Average Daily Traffic (AADT) volume of each facility. Each facility is also ranked in order of excess crashes compared to the average expected value for each peer group, based on the peer group average crash rate. For the pedestrian and bicycle emphasis areas, facilities are ranked based on crash frequency, not rate, because nonmotorized count data are not available at this time. Facilities in the top 5% of each peer group that exceed the critical crash rate are displayed on this map. These locations exhibit safety deficiencies with respect to certain crash types and are considered high priority for the region.



Bicycle High-Priority Safety Locations

Source: SEMCOG 2016-2020 Link: https://maps.semcoq.org/safety/

SEMCOG's systemwide safety analysis uses five years of traffic crash data. The safety performance of the road network is measured using methods from the AASHTO Highway Safety Manual. Each facility (segment, intersection, and roundabout) is evaluated by examining the historical traffic crash rate, based on the Annual Average Daily Traffic (AADT) volume of each facility. Each facility is also ranked in order of excess crashes compared to the average expected value for each peer group, based on the peer group average crash rate. For the pedestrian and bicycle emphasis areas, facilities are ranked based on crash frequency, not rate, because nonmotorized count data are not available at this time. Facilities in the top 5% of each peer group that exceed the critical crash rate are displayed on this map. These locations exhibit safety deficiencies with respect to certain crash types and are considered high priority for the region.



Bicycle & Pedestrian Crash Locations

Source: Michigan Traffic Crash Facts Link: https://www.michigantrafficcrashfacts.org/

This crash map represents locations of reported crashes on roads over an 18- year period from 2004 to 2021. Only three fatailties occurred, of which two were incidents along the freeway and one involved a parked car.



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O Fatal: 0 (0%)
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- O Serious Injury: 7 (8%)
- O Minor Injury: 41 (48%)
- O Possible Injury: 25 (29%)
- No Injury: 13 (15%)

Pedestrian Crash Locations

- Fatal: 3 (3%)
- O Serious Injury: 27 (29%)
- O Minor Injury: 35 (38%)
- Possible Injury: 25 (27%)
- No Injury: 3 (3%)

Summary Analysis

Pedestrian and Bicycle Access and Mobility

311 Miles of sidewalks and pathways

97 crosswalk locations

7 Miles of regional trails

3.4 Miles of bike lanes



- Most road crossings greater than 1/2 mile apart. Where there is demand to cross the road, spacing should be less then 1/8 mile apart.
- The configuration of most of the major roads calls for substantial crosswalk solutions. Increased safety features are required on high speed multi-lane roadways .
- Visibility at subdivision entrances is a concern when there is an intersecting pathway.
- Neighborhood streets and local roads provide a friendly environment for walking and bicycling compared to the busy arterials. More short connections between adjacent neighborhoods are needed.
- Mid-block crossing improvements should align with the low stress bike routes along local roads.
- Novi's ITC trail is a great asset within the city but needs to connect to other nearby trails and destinations in the region. (e.g. Maybury State Park, Lakeshore Park, Michgian Air Line Trail, Downtown Northville, I-275 MetroTrail)
- Wayfinding is needed throughout the city to connect bicycle and pedestrian routes to key destinations and trails.
- Not all areas of the city have equal access to nonmotorized facilities. Underserved areas would benefit from basic infrastructure that makes it easier and safer to walk and bike.

Novi Roadway Network

341 Miles of Roadway

80 Miles of Major Roads

260 Miles of Minor Roads

4.7 Square Miles of Right-of-way (15% of City Footprint)

- Arterials were designed to move a lot of vehicles at a high rate of speed.
- The expressways combined with major arterials, such as Grand River Ave, M-5, and Haggerty Road, create challenges for making nonmotorized connections across the middle and east side of the city. The I-275 Metro Trail and M-5 Metro Trail allow for travel along these corridors, but not necessarily across them.
- Strip development along major roadways, such as Grand River Ave, Haggerty Road, Novi Road, and Beck Road lead to frequent curb cuts.
- No traditional downtown, but major shopping centers along Grand River, Haggerty, and Novi Road.
 - Bicycle and pedestrain travel in the city generally follows the primary road system.

Transit

- Currently no train or bus service in the City of Novi.
- SMART bus routes are located to the east in the City of Farmington Hills along W 12 Mile Road and on Grand River Ave. Both routes terminate at Novi's Boundary at Haggerty Road.



Corridor Classification

Observations from SEMCOG Multi-modal Prioritization

- Grand River and 12 Mile are Transit corridors
- Grand River is ranked as a tier 2 prioritization
- Pedestrain, bike, auto, transit and freight all rank high on 12 Mile Road
- Pedestrian, bike, and auto all rank high on 10 Mile Road
- Pedestrain, freight and auto all rank high on Haggerty Road and 14 Mile Road

Source: https://semcog.org/mmtool





Transit Corridors Source: SEMCOG Modal Prioritization



Freight Corridors Source:SEMCOG Modal Prioritization



Bicycle Corridor Source: SEMCOG Modal Prioritization

Source: SEMCOG Modal Prioritization



Auto Corridor - Tier 1 Source: SEMCOG Modal Prioritization

Corridor Classification from 2011 Nonmotorized Master Plan

The 2023 update will stay within the framework of these classifications and will take into account potential transit opportunites and land use specifics, such as commercial and residential areas.



Fig. 3.1C. Bicycle/Pedestrian Focused Corridors

Bicycle/pedestrian focused corridors are roadways where an emphasis will be placed on the needs of the non-motorized user. The roadway will have design elements such as frequent mid-block crossings, miniroundabouts, medians and street trees that will result in motorists naturally driving the roadway at 30 to 35 mph.

The result is that the road will be a much more comfortable environment to walk along and many bicyclists will be comfortable using bike lanes on these roads.

Bicycle/Pedestrian Corridors include:

- East Lake Drive
- South Lake Drive
- West 13 Mile Road
- West Park Drive (Segment)
- West Road
- Meadowbrook Road
- Taft Road
- 11 Mile RoadW 9 Mile Road





Fig. 3.1D. Auto Focused Corridors

Auto focused corridors recognize that some roads in the City need to carry large volumes of motor vehicles at higher speeds. But even for these roads, bicycle facilities will be provided for non-motorized users commuting to work. Safe road crossing will also be provided between signals where there is demand.



Fig. 3.1E. Balanced Corridors Balanced corridors try to balance the needs of both non-motorized and motorized users.



Regional Trail Connections



The statewide trail system consists of the Great Lake-to-Lake Trail and the Iron Belle Trail. Novi has the opportunity to connect to both of these systems by linking the Novi ITC Trail to other nearby trails.

1 Novi ITC Trail

ITC trail is a great asset within the city. Nonmotorized connections to other nearby trails needed to link into the regional trail network. There is the opporunity for a 30 mile regional trail loop through Novi if links are completed to the Michigan Airline Trail, Maybury State Park and Hines Park Bikeway through Northville.

2 Maybury State Park

Nonmotorized connections needed between Novi ITC Trail and Maybury State Park.

3 Downtown Northville

Need to strengthen nonmotorized connections between communities.

4 I-275 Metro Trail

Provides a north-south connection following I-275 corridor on the cities east side. Opportunities to improve wayfinding and access to get to the trail.

5 M-5 Metro Trail

Provides a north-south connection along the M-5 corridor on the northeast corner of the city. This is currently the City of Novi's main link to the Great Laketo-Lake Trail.

6 Meadowbrook Path

A relatively new, 2-mile pathway connection between the M-5 Metro Trail and I-275 Metro Trail. Some signage exists to route trail users between both trails.

7 Lakeshore Park

Regional draw for mountain bikers with around 10 miles of trail. Need to improve nonmotorized connection to this park so users have the option bike to the park instead of driving.

8 Lyon Oaks Park

County Park located in the City of Wixom with 6 miles of natural trails. There is an existing sidewalk connection along Pontiac Trail to this park.

9 Great Lake-to-Lake Trail

This 275-mile bike route across southern Michigan from South Haven to Port Huron. There may be opportunities to expand Novi's ITC Trail north to make a connection to the Michigan Airline Trail along the Great Lake-to-Lake Trail Route.

10 Iron Belle Trail

When complete, this 2,000 mile loop trail will connect the western tip of the Upper Peninsula to Belle Isle in Detroit.



Composite Analysis

Equity Focus Composite Equity focus areas highlight where there is a higher probability for people to be dependent on nonmotorized travel as their primary means of transportation. This map uses census blocks to illustrate equity focus areas and includes the following data sets:





Latent Demand Composite

Latent demand areas estimate the potential demand for bicycle and pedestrain travel. Other factors may promote or inhibit actual nonmotorized travel levels. The composite analysis is a useful tool to contrast with facility deficiencies, potential facilities and to prioritize improvements. This map uses census blocks to illustrate latent demand for nonmotorized travel areas and includes the following data sets:





Nonmotorized Network Deficiencies

Distance between Crosswalks

This map highlights major road corridors with long distances between signalized and midblock crosswalks.

Crosswalk spacing is a key factor in directness of travel. Most pedestrian trips for personal business (like walking to the store) are about ½ mile long. Where there is demand to cross the road and crosswalk spacing is over ¼-mile apart, midblock crossings are likely to occur.

It is important to note that although there may be an existing pedestrian crossing or signalized intersection, they do not always provide an easy and safe way to get across the street. Many times additional improvements are needed at those locations to make them accessible to everyone.





This map highlights areas where there is potential for nonmotorized travel and long distances between existing crosswalks



Distance Between Crosswalks

Latent Demand Composite



This map highlights areas where there is a higher probability for people to be dependent on nonmotorized transportation and long distances between existing crosswalks



Distance Between Crosswalks

Equity Focus Composite

Citywide Sidewalk and Pathway Gaps

Illustrates sidewalk and pathway gaps along all roadway corridors in the City. In some cases, there may be sidewalks within a neighborhood but there are gaps in the primary road system inhibiting a pedestrians ability to travel to destinations outside of their neighborhood.





This map highlights areas where there is potential for nonmotorized travel and gaps in the sidewalk and pathway network



City Wide Sidewalk and Pathway Gaps

Latent Demand Composite



This map highlights areas where there is a higher probability for people to be dependent on nonmotorized transportation and gaps in the sidewalk and pathway network



City Wide Sidewalk and Pathway Gaps

Equity Focus Composite

Major Corridor Sidewalk and Pathway Gaps

Illustrates sidewalk and pathway gaps along major corridors along with key neighborhood connection identified by the City of Novi.





This map highlights areas where there is potential for nonmotorized travel and gaps in the sidewalk and pathway network along major corridors



Major Corridor Sidewalk and Pathway Gaps

Latent Demand Composite



This map highlights areas where there is a higher probability for people to be dependent on nonmotorized transportation and gaps in the sidewalk and pathway network along major corridors



Major Corridor Sidewalk and Pathway Gaps

Equity Focus Composite

Bicycle Safety



Economic and Societal Impact of Bicycle Crashes in Novi 2004 to 2021

\$3.2 Million

Economic Cost: Productivity, medical, emergency and costs to employers



\$17.6 Million

Comprehensive Cost: Economic costs plus quality of life valuations (Amount society is willing to pay to avoid the crash)







8650Bicycle
crashes
since 2004Average
number of
crashes a yearFatalities
in 18
years

59% speed limit 40 mph or greater

SPEED LIMIT

40

54%

and 6pm

Between 2pm

Speed is a central factor in traffic deaths. As speed limits and speeds increase, so do fatalities.



Latent Demand Composite *Compared to Bicycle Crash Locations*



Distance Between Crosswalks *Compared to Bicycle Crash Locations*



Equity Focus Composite Compared to Bicycle Crash Locations



Major Corridor Sidewalk & Pathway Gaps Compared to Bicycle Crash Locations

- Zero fatalities in 18 years
- Majority of bicycle crashes occurred in the afternoon when daylight was present
- Safety improvements needed at intersections
- High speed limits at locations of crashes could be contributing higher than average serious injury crashes
- Over ½ of all crashes were at a signalized intersection
- Around 90% of all crashes occurred in the roadway

High Priority Locations for Bicycle Safety

This map illustrates priority corridors and intersections along major roads for bicycle safety improvements based on crash frequency and severity of crash.

Top Major Intersections for Bicycle Safety Improvements:

- Beck Road and Pontiac Trail
- Grand River Ave and Meadowbrook Road
- Novi Road and W 9 Mile Road

Top Major Corridors for Bicycle Safety Improvements:

- 13 Mile Road (Old Novi Road to Meadowbrook Road)
- W 10 Mile Road (Taft Road to Novi Road)
- Novi Road (W 12 Mile Road to 13 Mile Road
- Novi Road (Grand River to I-96)
- 13 Mile Road at M-5





This map highlights areas where there is potential for nonmotorized travel and gaps in the sidewalk and high priority areas for bicycle safety



This map highlights areas where there is a higher probability for people to be dependent on nonmotorized transportation and gaps in the sidewalk and high priorty locations for bicycle safety



High Priority Locations for Bicycle Safety

Latent Demand Composite



High Priority Locations for Bicycle Safety

Equity Focus Composite

Pedestrian Safety



9353Pedestrain
crashes
since 2004Average
number of
crashes a yearFatalities
in 18
years

Economic and Societal Impact of Pedestrain Crashes in Novi 2004 to 2021

\$10.6 Million

Economic Cost: Productivity, medical, emergency and costs to employers



40 mph or

greater

Speed is a central factor in traffic deaths. As speed limits and speeds increase, so do fatalities. When struck by a vehicle at 40 MPH, a pedestrian has a 20% survival rate.

\$55.3 Million

avoid the crash)

Comprehensive Cost: Economic

costs plus quality of life valuations

(Amount society is willing to pay to

29%

Suspected

10% higher than

state average

20%

42%

Daylight

Hit and Run

Serious Iniurv



Latent Demand Composite Compared to Pedestrian Crash Locations



Distance Between Crosswalks Compared to Pedestrian Crash Locations



Equity Focus Composite Compared to Pedestrian Crash Locations



Major Corridor Sidewalk & Pathway Gaps Compared to Pedestrian Crash Locations

- 2 fatalites occurred along the expressway
- 1 fatality caused by parked vehicles sliding into each other
- Majority of crashes with pedestrains result in injury
- High speed limits at location of crashes could be contributing higher than average injury crashes
- Cluster of crashes near Beck Road and Pontiac Trail where multifamily residential is across the street from commercial strip development
- Over 80% of crashes occurred on the roadway

High Priority Locations for Pedestrain Safety

This map illustrates priority corridors and intersections along major roads for pedestrain safety improvements based on crash frequency and severity of crash.

Top Intersections for Bicycle Safety Improvements:

- Beck Road and Pontiac Trail
- Haggerty Road and W 9 Mile Road
- Novi Road and W 12 Mile Road
- Haggerty Road and W 10 Mile Road

Top Corridors for Bicycle Safety Improvements:

- Beck Road (South of Pontiac Trail)
- Pontiac Trail (Beck Road to W Park Dr)
- Grand River (Novi Road to Haggerty Road)
- Haggerty Road (Grand River Ave to W 12 Mile Road)
- Haggerty Road (W 10 Mile Road to 8 Mile Road)
- W 10 Mile Road (Meadwbrook Road to Haggerty Road)
- Taft Road (W 10 Mile Road to W 9 Mile Road)
- 12 Mile Road (Napier Road to Wixom Road)





This map highlights areas where there is potential for nonmotorized travel and gaps in the sidewalk and high priority areas for pedestrian safety



High Priority Locations for Pedestrain Safety

Latent Demand Composite



This map highlights areas there is a higher probability for people to be dependent on nonmotorized transportation and gaps in the sidewalk and high priorty locations for pedestrian safety



High Priority Locations for Pedestrain Safety

Equity Focus Composite

Corridor Evaluations

Priority Corridors

This summary map highlights priority corridors for nonmotorized improvements based on equity, demand and safety. Each corridor segment was given a total score between 1 to 18 based on the following data sets. Equity and demand were given a score between 0 to 3 on each side of the road, for a score of up to 6. Bicycle and pedestrain safety received a score between 0 to 3 for each segement, for a combined score of up to 6.







This map highlights areas where there is high priority for nonmotorized improvements and gaps in the sidewalk and pathway network along major corridors



Major Corridor Sidewalk and Pathway Gaps

Priority Corridors



This map highlights areas there is there is a high priority for nonmotorized improvements and long distances between existing crosswalks



Distance Between Crosswalks

Priority Corridors

Policy, Program and Metric Evaluations

Complete Streets



- Complete Streets Policy Adopted in 2011.
- As part of the CIP, the City developed a 6-year nonmotorized improvement plan based on the Nonmotorized Master Plan.
- DPS meets with RCOC every two years.
- DPS meets with MDOT as needed. .
- Engineering Division is working on ordinance amendments & revising the City's engineering design standards to implement the Non-Motorized Master Plan & Complete Street Policy Recommendations.
- City Zoning Ordinance was amended to include Bicycle Parking Facility Requirements in Article 5 Site Standards.

(2)

ADA Compliance

- ADA Transition Plan adopted in 2014.
- The DPS has designated Aaron Staup as the ADA coordinator since 2015.
- As part of the ADA Transition Plan, Giffels-Webster inventoried curb ramp conditions throughout the City.
- ADA improvements are included as a budget item in the CIP. .

3 Safe Routes to Schools

- Many of these recommendations fall underneath the jurisdiction of the various school districts however, the City has contacted them & will continue to identify key people at the local school districts to discuss working with them on SR2S programs.
- The City's Traffic Safety Committee continues to work with local school districts on school safety issues.
- The City collaborated with Novi Community • School District in 2019 to solicit funding from the Michgian Safe Routes to School grant program. The grant was awarded and some segements have been constructed.



Bicycle Parking

- City Zoning Ordinance was amended to include a section Bicycle Parking Facility Requirements in Article 5 Site Standards in 2013.
- City Code of Ordinance was amended with Article XI Off-Road Nonmotorized Facilities which establishes the requirements for the design and construction of off road nonmotorized facilities.

5 Maintenance of Nonmotorized **Facilities**



- GIS & DPS staff have inventoried sidewalks & initiated a computerized asset management system (City Works) to track installation & maintenance of public sidewalks & pathways.
- DPS staff have had internal discussions regarding how to implement & fund a set of sidewalk maintenance policies for those nonmotorized facilities for which it is responsible.
- DPS is responsible for clearing city sidewalks, pathways . and boardwalks adjacent to city owned properties. Home Owners Association are responsible for common sidewalks within the subdivision.
- The snow clearing policy is described on the City's . website in the DPS Field Operations Division, Roads and Drains Section. A map of sidewalks cleared by City contract linked on the website.
- DPS updates the length of sidewalks to be maintained . regularly, based on new construction and special determinations.
- There is a contact number listed on website for general inquiries and complaints.
- There are no rules to enforce snow removal on . privately owned sidewalks. City advocates Voluntary Compliance. City generally contacts the owner and advocates for snow removal.

- DPS currently clears school walks and high volume pathways along arterial roadways.
- Once a year, in spring, DPS inspects all City owned sidewalks, pathways and boardwalks.
- Created in 2014, the City "Ride and Walk Novi" website • encourages residents to contact the City Staff for any nonmotorized related issues. Contact information for Barbara McBeth, City Planner is provided on the website.

6 Sidewalk/Roadside Pathway Completion



- As on-going efforts, the DPS and Planning Staff update the City code based on the recommendations in the plan.
- Staff has discussed the possibility of requiring completion of sidewalks in single family home residential developments prior to build-out to provide complete sidewalk networks earlier in the development process.
- City's Pathway and Sidewalk Prioritization Analysis has typically been updated during October or November since 2006.

Public Outreach & Education



- Novi's Older Adult Services Office established a Novi Walkers Club to hold organized walks.
- Walkable Novi Committee established in 2007.
- Ongoing efforts to establish a brand for the bicycling & walking outreach & education program.
- Until 2014, as part of City's Facebook & Twitter accounts, a bicycle safety video was added to the City's website.
- In 2014, City's Ride and Walk Novi website has been reorganized and updated to include more resources for riding and walking opportunities in Novi.
- The City continues to support & provide services for a variety of mountain bike & trail run competitions at Lakeshore Park.
- Novi Night Group Rides in partnership with Motor City Mountain Biking Association.
- Annually Keep Rolling in partnership with Performance Bicycle of Novi.
- Tying active transportation messages and information into existing events such as, Memorial Day parade, 5K Emergency Run, Family Bike Event (Digital Detox Week).

- Started Annual Bike Rodeo in 2012.
- City's GIS Division maps existing & proposed facilities.
- Produced a community bicycle map in 2013.
- Host Bike to Work Week annually.
- Applied for League of American Bicyclists Bicycle Friendly Community Status in 2013 but application not accepted. Staff intends to reapply at a later date.

8 Site Review Plan



- City Zoning Ordinance was amended to include a section Bicycle Parking Facility Requirements.
- Bicycle Parking review is included as part of the Planning Review Chart.
- Since August 2015, required bike racks have been approved across the City as part of Site plan approval process. Details are provided to Walkable Novi Committee periodically.