



Active Transportation Element

Part One: Finding Meaning





Introduction

Active transportation, encompassing pedestrian, bicycle, and lightweight, low-powered “micro-mobility” devices such as scooters, have an increasing important role to play in Northwest Indiana’s transportation network. The benefits of these modes are well-documented, ranging from their efficient use of space, extreme energy efficiency and very low environmental impact, and positive impact on individual health and wellbeing. The NWI region has positioned itself to take advantage of these benefits and expand the role of active modes. The region has taken full advantage

of the abandonment of duplicative rail corridors radiating from Chicago to create one of the nation’s leading and most functional system of shared use trails. These trails both serve internal community needs and link NWI’s cities and many of its central districts together. Preservation of corridors through railbanking and creative short- and long-term planning through the NIRPC’s Blueways and Greenways .Regional Plan will ensure the extension of trails into more parts of the MSA and continue to connect communities. Finally, the recent awards of a RAISE grant in 2021 to complete the Marquette Greenway from Whiting to New Buffalo and in 2022 to implement a complete street program along Ridge Road from the Indiana State Line to Columbia Avenue in Munster represent

major investments in active transportation infrastructure and integration with major improvements and expansion of the South Shore Line. The region now has over nearly 300 miles of local, regional, park, and multi-state trails.

On the other hand, aspects of development in NWI also pose significant challenges. While trail development has been visionary and robust, on-street infrastructure -- including ways to link trails together and to neighborhoods and major off-trail destinations has lagged. Land use patterns with large heavy industrial sites, mainline railroads, and three transcontinental interstate highways all create difficult barriers. And the auto-oriented environments of the eras that represented NWI’s most extensive growth made few if any accommodations for pedestrian or bicycle access. Filling these voids are the major focus of the active transportation element of the NWI 2050+ plan.

The Scope of the Active Transportation Element

The Active Transportation Element is part of the Northwest Indiana Regional Planning Commission’s update of its NWI 2050 Plan. It supplements the *Greenways + Blueways Plan*, which is primarily focused on trails using separated rights-of-way, and the NWI 2050 Plan, which recognized the role of both trails and complete streets and established a funding framework for both.

Individual communities also develop active transportation components of their comprehensive and/or transportation plans. For example, Hammond published a bicycle master plan in 2019 and Gary is developing a similar plan at the time of this writing in 2022. Munster is preparing a new comprehensive plan in 2022 and Merrillville is undertaking a similar project in 2022-23, both of which will incorporate local active

transportation plans.

The overall goal of this effort is to build on the solid foundation of previous work to integrate existing and proposed trails, appropriate streets and roadways, and other corridor opportunities into a comprehensive regional network that connects and serves major destinations like city and town centers, the lake shore and Indiana Dunes National Park, South Shore stations, major parks, commercial focuses, and other activity centers and access nodes.

This plan does not go the level of detail of an active transportation plan for a specific city. The three-county NWI region is approximately the size of the State of Delaware, and such place-specific plans are the prerogative of municipalities. But it will address components of the network within city boundaries. It will also identify types of infrastructure that match the conditions of elements of the network and will provide specific guidance and concepts for individual problems, including street and highway barriers and creating better pedestrian/bicycle environments in major auto-oriented environments. It will also be integrated with other elements of the 2050+ project, including land use, transit, roadways, and freight movements.

This paper is based on extensive fieldwork in all parts of the study area and conversations with people who live, work, make policy, and develop projects in Northwest Indiana. Its preparation including several hundred miles of bicycling (and a smaller amount of driving) throughout the region, holding six public input sessions at six bike shops from August through October, 2022, and reviewing the results of a survey that attracted 214 respondents as of November, 2022. It summarizes trends and relationships, and observations, allowing facts and observations to help frame directions and priorities of successive phases of the

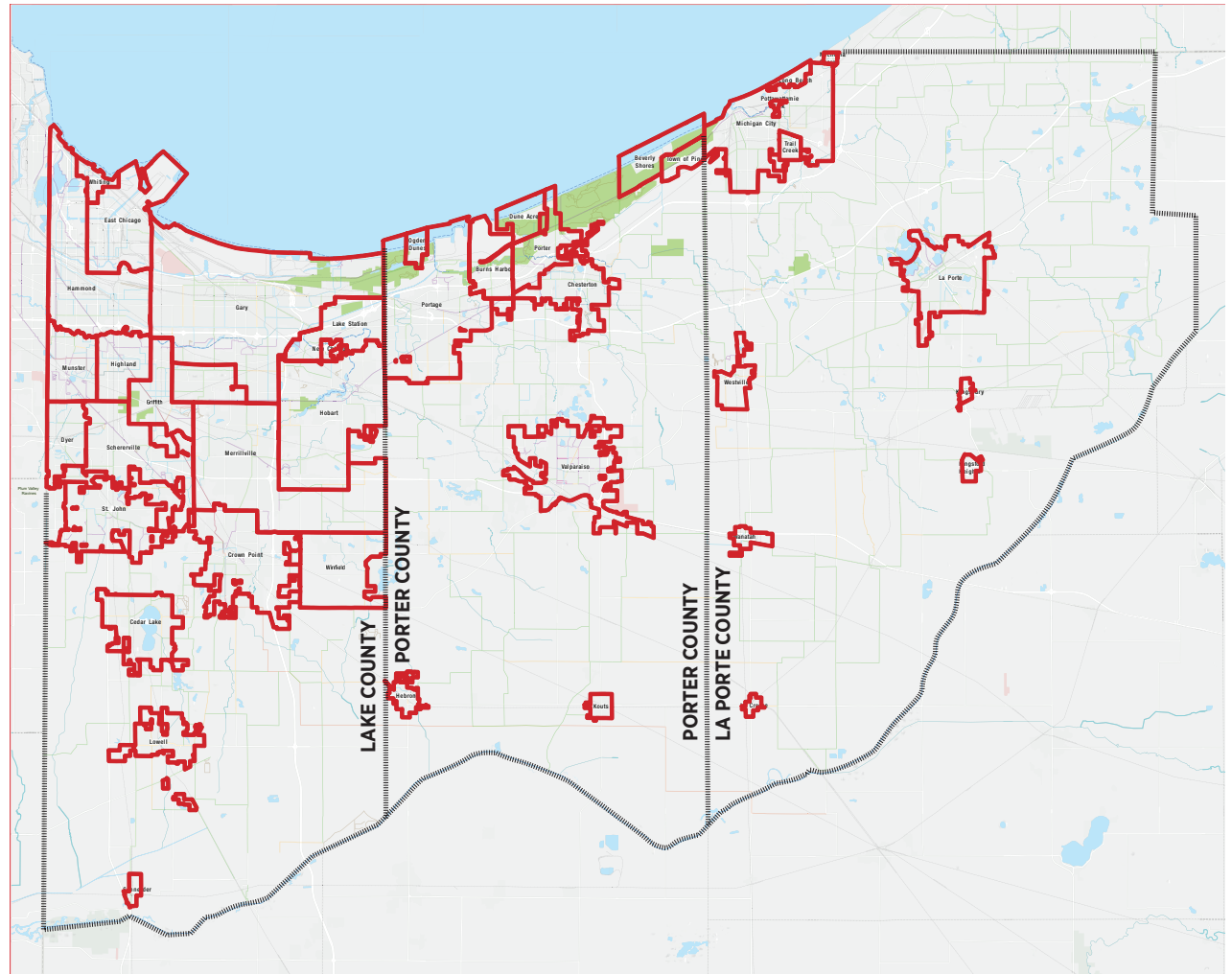


Figure 1: NWI 50+ Study Area

plan. It is conceived as an analytic atlas of the region that covers the following subjects:

Existing/proposed regional trails and bicycle infrastructure. This identifies major existing regional facilities on the ground and proposed trails included in the Greenways+Blueways Plan. These exhibits also display areas within two miles of a regional trail corridor. Two miles typically corresponds to a 10-12 minute bicycle

rode to a trail. In a sense, this analysis conceives of trails much like transit lines or the major arterials of a network, with streets, roads, and local trails functioning as the feeder routes.

The 15-Minute City Concept. This concept of a walkable/bikeable environment around a major focus, like a city or town center, was also discussed in the Finding Meaning element of the Land Use Element

and is repeated here for reference. The concept helps evaluate the adequacy of access routes and presence of barriers within the theoretical walking or biking distance to a town center or any other destinations.

Past planning efforts of individual communities. This will summarize recent and current planning efforts addressing active transportation within communities. Plan policies in Part Three will encourage communities to prepare and implement individual active plans and provide guidance for how these processes can be executed.

Public Engagement Results. In the on-line survey, participants provided opinions about destinations and different types of facilities, among other items. Through interactive mapping, they also provided comments about specific locations. Finally, the six workshops provided valuable information and specific ideas, generally from experienced cyclists and bike hop staff.

Destinations. This display maps key destinations for active transportation, generally derived from both our experiences and fieldwork in the MSA and the opinions of survey respondents. Based on this information, this section will summarize the basic framework of a destination-based network – the specific features that it should serve and connect.

Road Typology. The major focus of this study will be the street and roadway system of the NWI region. This section describes various roadway types observed in the region, their potential role in the network, and types of infrastructure necessary to make them useful for the largest number of potential users.

Network Candidates. This section presents overall principles that guide components of the network and
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a series of maps identifying candidate corridors for more detailed analysis and facility design in Part Two. It also identifies areas that require special study and detail for pedestrian and bicycle access during the next parts of the plan.



Regional Trails: Existing

Figure 1 on this page displays the reach of existing regional trails. The longest continuous facilities are the Oak Savannah/Prairie Duneland, Erie-Lackawanna, and Pennsy Greenway. Both the Marquette Greenway and Little Calumet have significant lengths of trail, but their full length is interrupted, and the north-south Monon Trail is officially closed with the construction of the South Shore Line's West Lake Corridor.

Shaded areas indicate catchment corridors that are two miles in each direction from the main trail, with darker shades represent areas served by multiple regional trails. Current trail service is concentrated in the northwest corner of the NWI region, extending paralleling the lakefront to Michigan City by combining the Prairie Duneland and Calumet Trails, the latter an unpaved facility.

On-street bicycle infrastructure is limited to scattered locations in cities. These facilities include:

In Hammond:

- Hohman Avenue, with buffered bike lanes between Downtown and I-80
- Sohl Avenue, with buffered bike lanes from Douglas Street to Municipal Drive, at which point it continues north as a sidepath
- Douglas Street from Sohl to the Erie-Lackawanna Trail

In Munster:

- Fran-Lin Parkway from Calumet to West 45th
- White Oak Avenue from Ridge to Carmelia

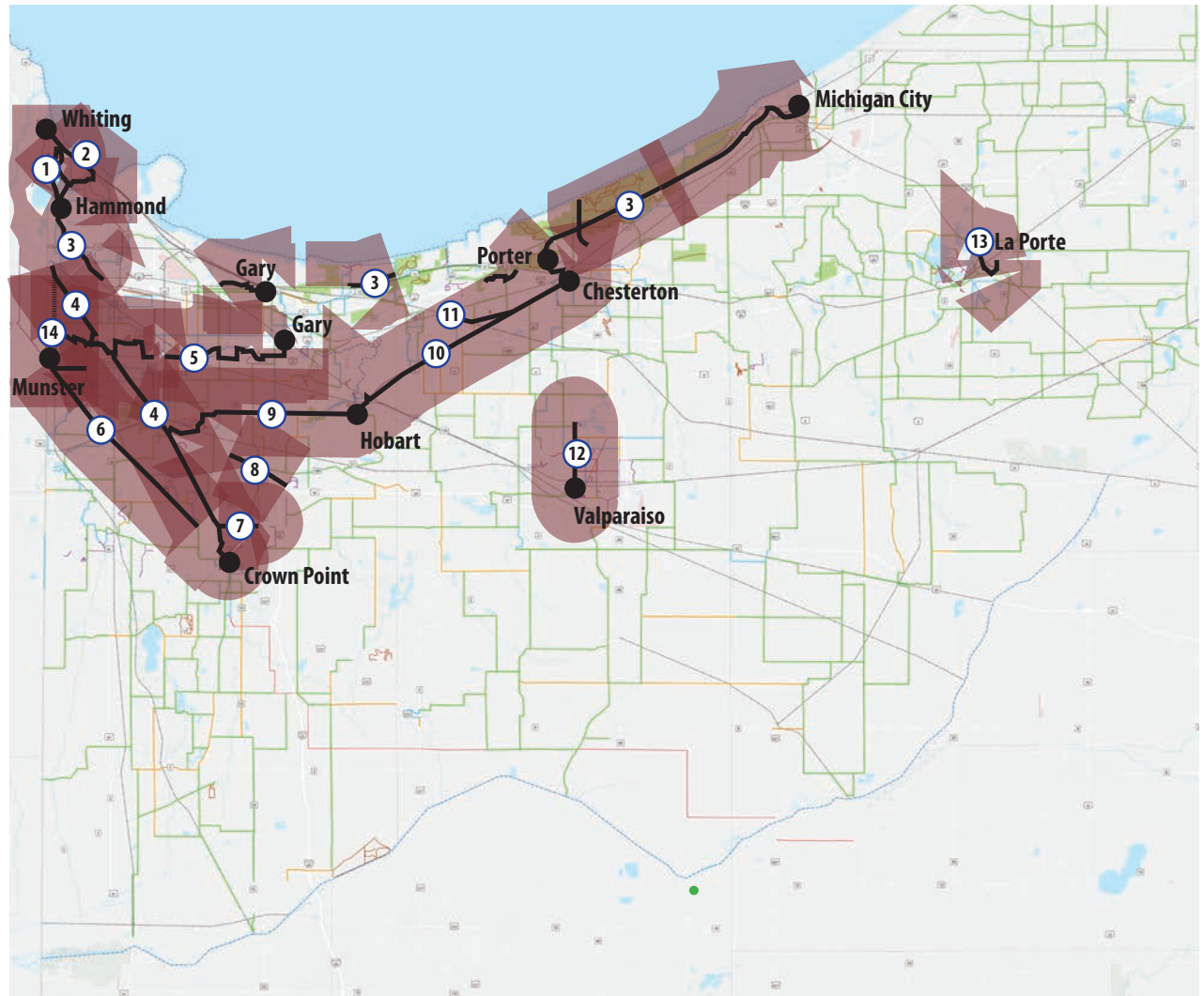
In Crown Point:

- Court and West Street one-way pair from Summit and the Erie-Lackawanna trailhead to the Downtown Square

In Michigan City:

- Wabash Street, with buffered bike lanes from West 4th to West 11th Streets.
- Pine Street, with buffered bike lanes from East 11th Street to Michigan Boulevard, continuing on Franklin Street to the Harriet Colfax Bridge

Figure 1: Extent and Service Coverage of Existing Trail System



1	Wolf Lake Loop
2	Whiting Beach Trail
3	Marquette Greenway
4	Erie-Lackawanna Trail
5	Little Calumet Trail
6	Pennsy Greenway
7	93rd Ave Spur

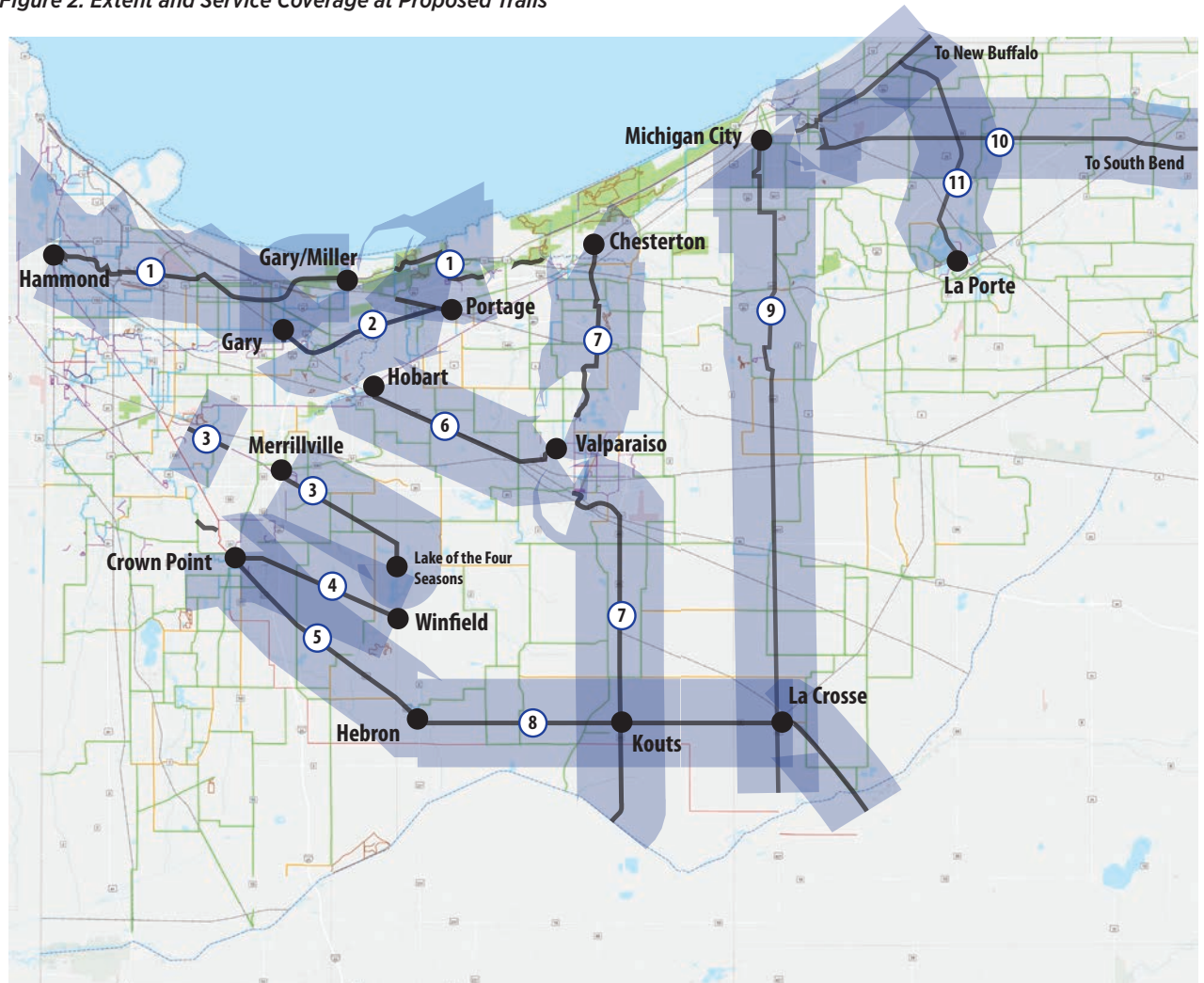
8	C&O Trail
9	Oak Savannah Trail
10	Prairie Duneland Trail
11	Iron Horse Trail
12	Lakewood Link (Dunes-Kankakee Trail)
13	Chessie Trail
14	Monon Trail

Regional Trails: Proposed

Figure 2 on this page displays the reach of proposed regional trails. These proposed facilities extend the trail network well into rural parts of the MSA, primarily to the east and south. Major new regional facilities include:

- Completion of the Marquette Greenway from the Chicago/Whiting boundary to New Buffalo, Michigan. The project includes paving the currently unpaved Calumet Trail segment from Dune Acres to Michigan City. This project is funded through a RAISE grant awarded in 2021.
- The Dunes Kankakee Trail, connecting Chesterton and the Prairie Duneland/Oak Savannah system to Valparaiso and south to Kouts and River's Edge Farm.
- The Veterans Memorial Trail, extending the Erie-Lackawanna to Hebron and part of the Great American Rail Trail system which continues west along SR 8 to La Crosse.
- The Iron Horse Memorial Trail, a strategic urban link between the Prairie Duneland and Little Calumet Trails through Portage and Lake Station
- The C&O Trail connecting much of the existing trail network to the Merrillville/Hobart commercial complex at I-65 and US 30.
- The Lincoln Memorial Trail, linking Michigan City with the Purdue Northwest campus and Westville.
- The Wheeler Trail, connecting Valparaiso to the Prairie Duneland Trail at Hobart
- The South Shore Line Trail, paralleling the nation's last interurban railroad and eventually linking South Bend and Michigan City.

Figure 2: Extent and Service Coverage at Proposed Trails



1	Marquette Greenway
2	Iron Horse Memorial Trail
3	C&O Trail
4	Winfield Trail
5	Veterans Memorial Trail
6	Wheeler Trail

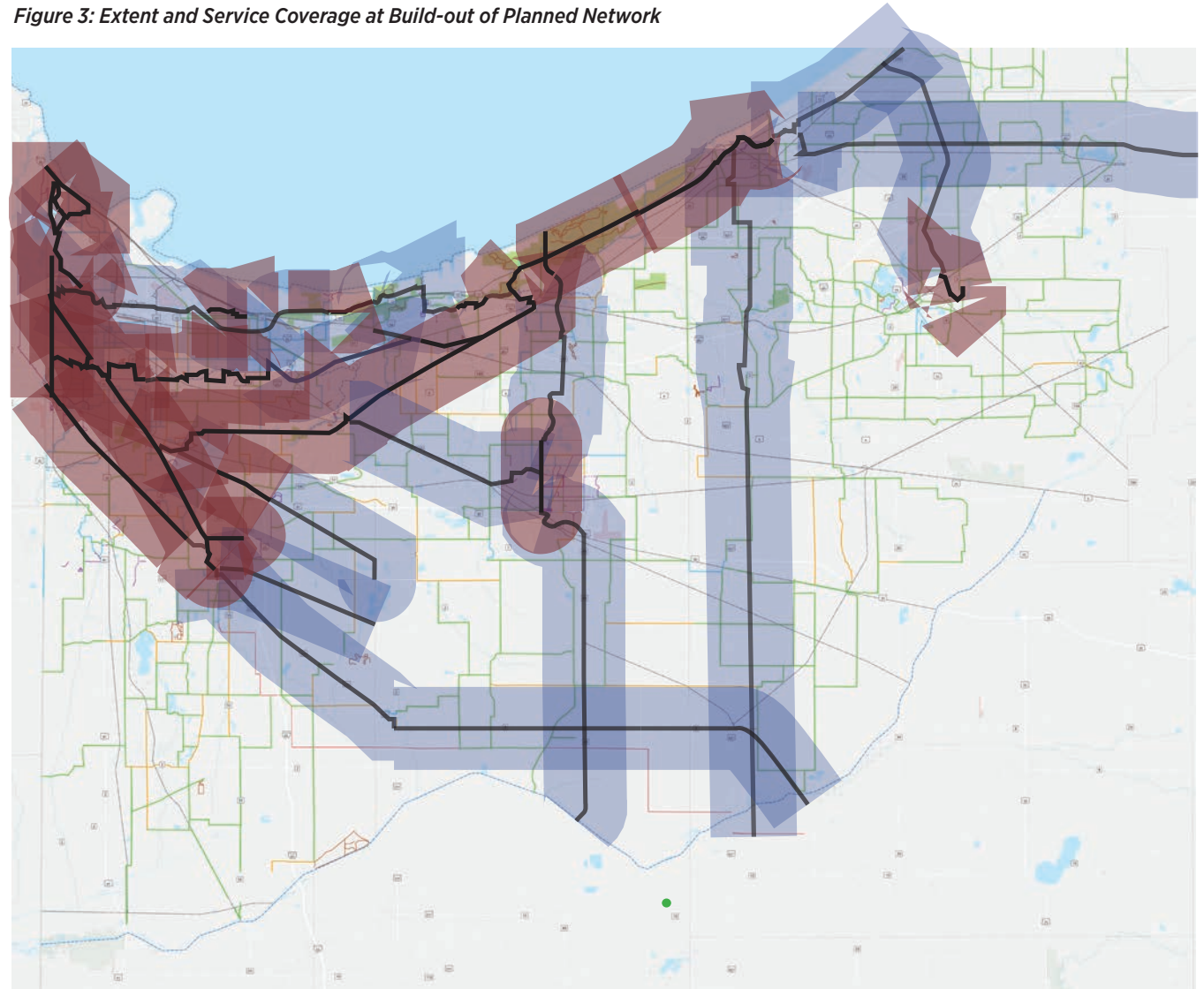
7	Dunes Kankakee Trail
8	SR 8/Great American Rail Trail
9	Lincoln Memorial Trail
10	South Shore Line Trail
11	Chessie Trail

The Future Trail Network

Figure 3 on illustrates the extent and service coverage of the future trail system, and helps direct the nature of a future network. The fully realized vision of the Greenways+Blueways Plan produces an impressive result that places about one-third of the MSA within two miles of a regional trail and establishes connections between cities and towns reminiscent of European networks. Despite this, there are significant geographic gaps in service. These include the fast growing southwest quadrant, the focus of much of the region's housing development. This area lacked the mainline railroad abandonments that other parts of the region capitalized on. Other gaps include the central part of the region, southwest and directly east of Valparaiso and the rural and lake-oriented communities on the eastern edge of the MSA. While these areas have relatively small populations now, anecdotal information suggests growing developer interest for a market segment moving into Indiana from the Chicago area. In addition these areas have significant visitor and recreational attractions.



Figure 3: Extent and Service Coverage at Build-out of Planned Network



The 15-Minute City

The concept of a 15 minute city as a land use and urban design tool has significant antecedents. The early 20th Century planner Clarence Perry established the concept of a “neighborhood unit” with neighborhood institutions including a community center and elementary school at the center of a planned neighborhood. This concept, published in 1929 was itself derived from the Garden Cities movement and the work of new town planners such as Clarence Stein and Henry Wright’s who applied the idea in their famous Radburn, New Jersey development. Its contemporary version was developed by Carlos Moreno, a professor at the Sorbonne in Paris. It envisions a city developed of districts in which people can perform six essential functions (living, working, commerce, health, education, and entertainment) within a 15-minute walk or bike ride from their home.

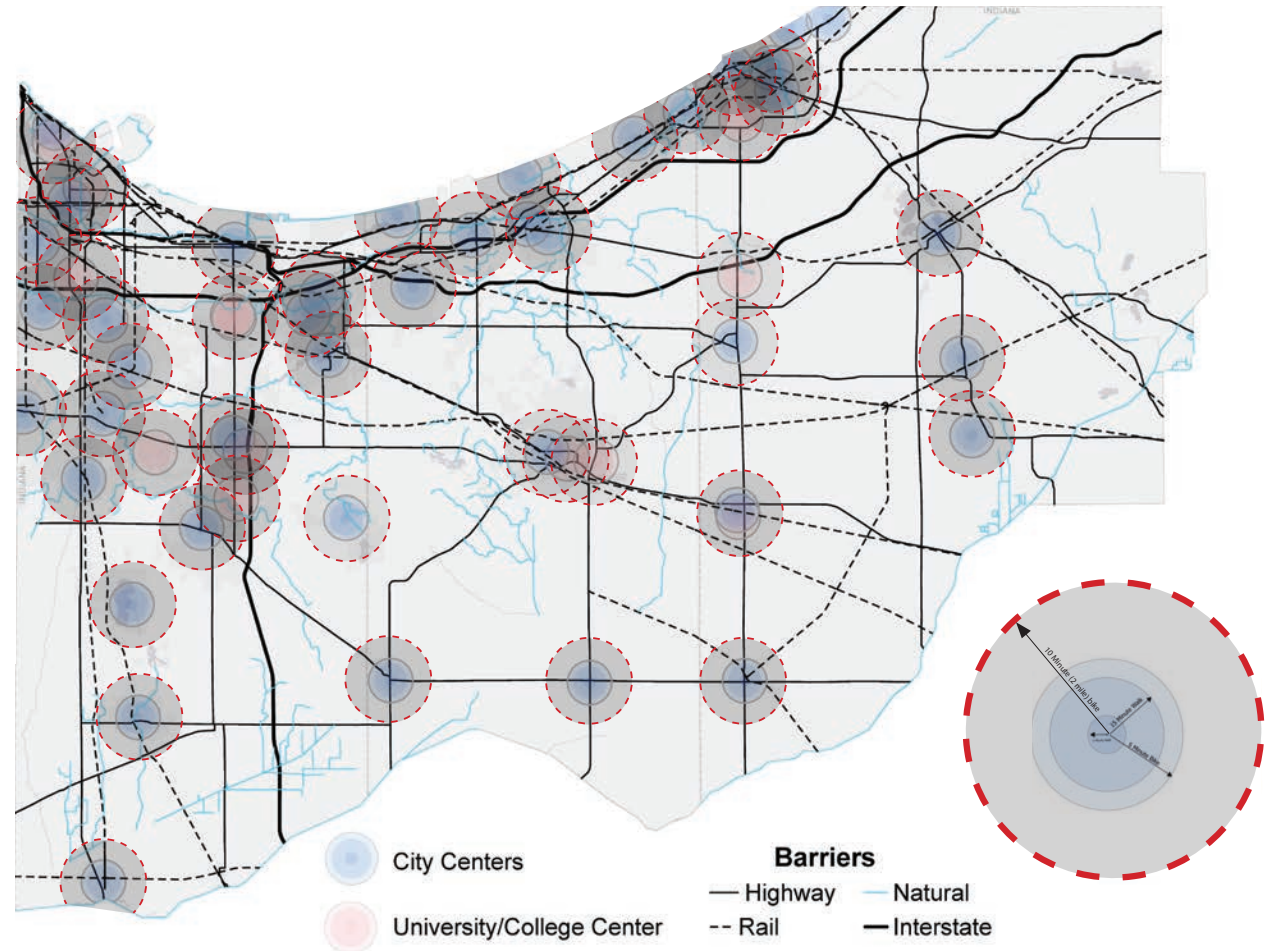
The concept is difficult to realize retroactively in American cities, where a number of these functions are both dispersed and in many cases concentrated in relatively distant areas. Examples relevant to Northwest Indiana are health care, given concentrations of services in large hospitals and commuting to work. But other aspects are more attainable from the perspective of facility planning, design of new projects, land use, and active transportation planning. To that end, NIRPC has applied the concept to Northwest Indiana’s geography, using city centers as the focal point. Figure 4 illustrates the results of that study, using a 15 minute walking radius and a 5 minute biking radius as standards. For this study, we have amended that to include a 10 minute biking radius, corresponding to a two mile trip at a speed of 12 miles per hour. The 2010 National Household Travel Survey by the Federal Highway Administration and cited by

the League of American Bicyclists indicated that 40% of all trips are two miles or less in length. Figure 6 on the facing page superimposes this short trip radius standard on the existing land use map to help relate destinations and places of residence. It is

These maps show that overlapping access from city and higher education centers, with all of their attendant services and land uses, is very good in the northwestern corner of the region and much of the Duneland

tier, thinning out in what are now rapid growth areas to the south. However, barriers such as the Interstates and major highways and railroads compromise or block access entirely. These barriers are especially concentrated in the northwest, suggesting the importance of addressing these barrier problems in addition to linear infrastructure and land use policy.

Figure 4: 15-Minute City Analysis with Barriers around City and Town Centers



Integrate Alternative Travel Modes

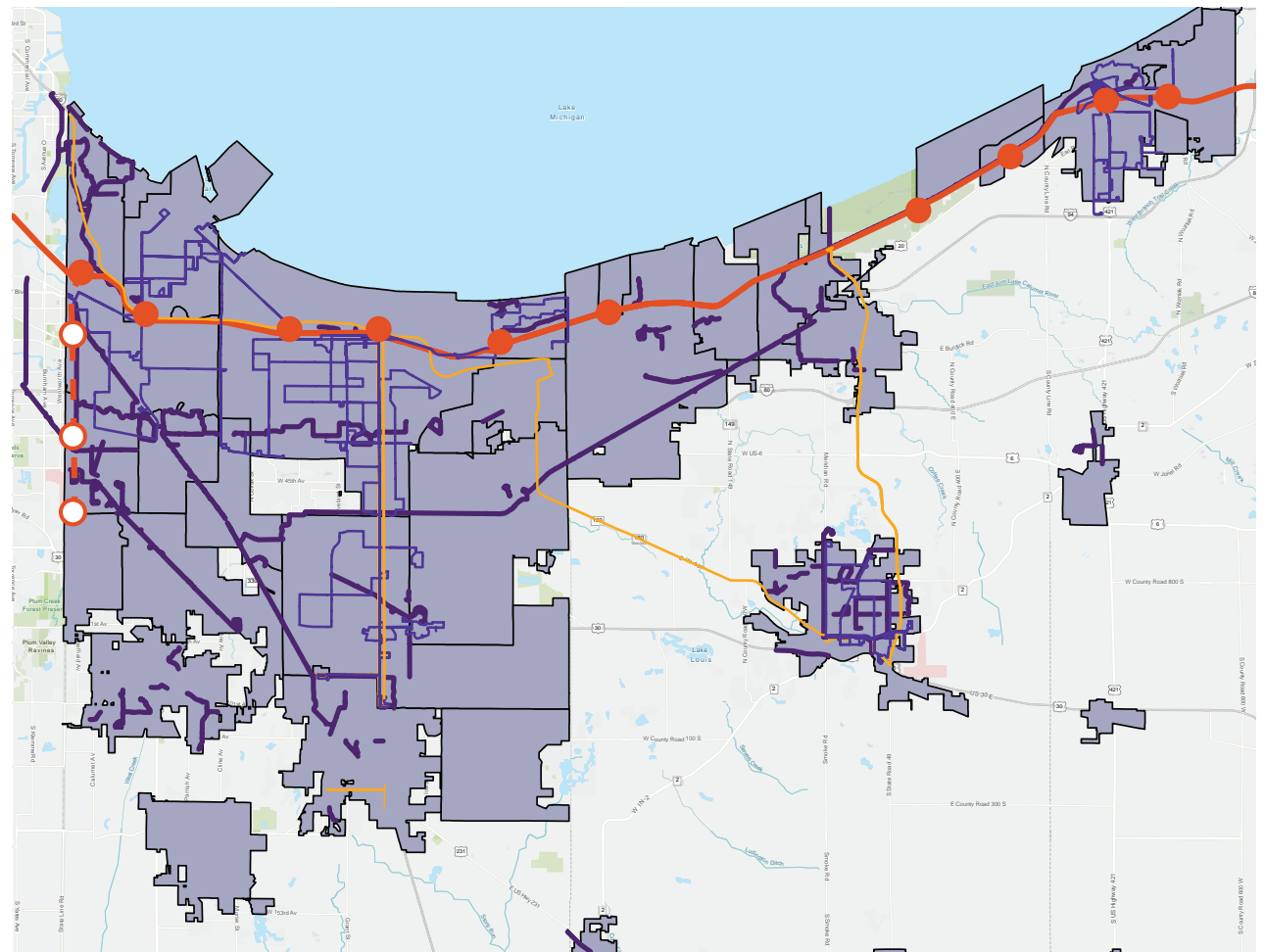
Transportation and land use are highly related and alternative transportation facilities can be especially important, as historic photographs of the Chicago “L” being built in cornfields can attest. Dual mode transit and pedestrian/bicycle systems also expand the market and use of both modes. Dual mode bike/transit trips can expand the direct market radius from the generally accepted 1/4 mile to up to 2 miles. Integration means such actions as secure bicycle storage at transit stops and train stations; accommodations for bikes on vehicles; and safe and secure routes that encourage people to walk or bike to transit. Figure 5 shows the relationship between regional trails and existing transit lines, including the South Shore and West Lake corridors, Broadway BRT, V-Line express services from Valparaiso to the South Shore and Chicago, and local transit services. A comprehensive active transportation network should connect trails to transit.

The relationship of transit and and bike/ped facilities also builds population density and the number of people served by active modes. The double tracking of the main line to Michigan City, now under construction, which will increase train frequency and reduce travel time to Chicago by 35%, has already catalyzed an \$80 million Transit Oriented Development (TOD) in Downtown Michigan City. The new Westlake line now under construction, extending a branch from a junction station in Hammond to Dyer will also have a major impact on development patterns. The award of a large REACH grant to Munster to develop a protected cycle track for 1.3 miles of Ridge Road between the state line and Columbia Avenue will demonstrate the development influence of this combination of modes.

Active transportation corridors also attract development by adding access to a dual purpose facility that combines transportation and recreation. In Minneapolis, for example, the Midtown Greenway, a grade separated crosstown trail, has generated about \$1.44 billion in new investment along its 5.5 mile route. The regional Northwest Indiana trails have many of the characteristics that make the Greenway an effective land and economic development tool -- use of railroad right-of-ways that serve centers and are effective transportation facilities, limited interruptions by

cars, and high development standards. The region’s excellent trails have undoubtedly had a significant, if underappreciated, effect on land use and should be seen from a development as well as a recreational perspective. As an example, the Gary Elevated – an innovative and exciting concept to adapt an above grade abandoned railroad loop that surrounds the core of the city, combined with TOD potential created by the upgrading of South Shore service, can create conditions for transformation of the Metro Center district.

Figure 5: Alternative Transportation Facilities in the Northwest Indiana Region



Community Input

No one, however much time he or she might spend learning about a region, can know as much about its fabric and character than its residents. The process that led up to this working paper included an extensive survey summarized here. The survey also included an interactive mapping features, on which 156 location-related notes and comments were posted and discussions started. These are recorded in an appendix to this document. As mentioned earlier, six workshops took place at bicycle and outfitting shops across the region and in-depth conversations with knowledgeable cyclists helped frame some of the ideas introduced here and to be developed in subsequent parts of the planning process. The survey results, exploring the transportation preferences of participants, their specific opinions, and their comfort levels with different types of facilities, are summarized graphically in the following pages.

Participants Characteristics

While a non-random survey does not have statistical significance, it does accurately relate opinions of people motivated to take the survey. Figures 6 and 7 on this page tell us something about these people. The largest groups were from the Valparaiso area, undoubtedly reflecting the interests of a university community and the older suburban cities in the central western part of the MSA. These are locations that also have some of the region's best trail service. Older industrial cities and the central lakeshore were relatively represented, although focused efforts increased participation in later stages. About 70% of respondents were between ages 30 and 65, not atypical of similar surveys.

Figure 6: Place of Residence of Survey Respondents

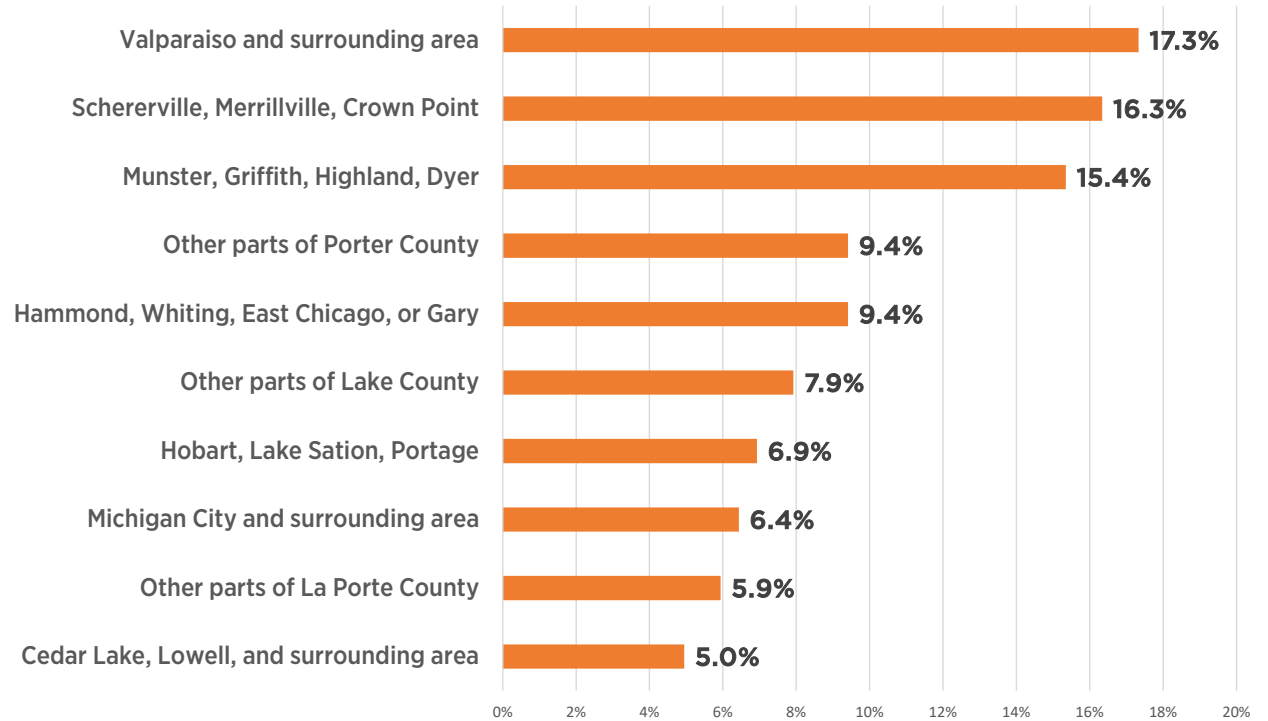
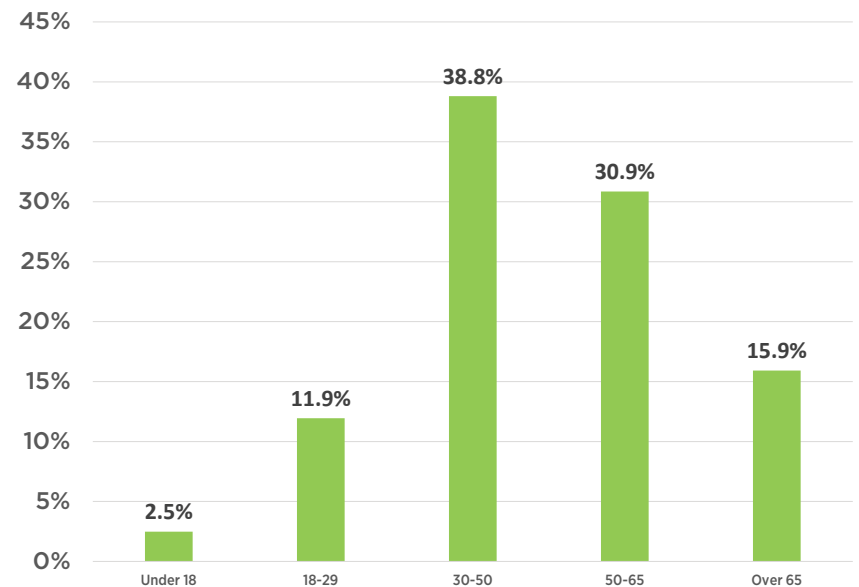


Figure 7: Age of Survey Respondents



Issues

Participants rated road safety and lack of sidewalks and need for bike lanes or additional paths highest among a variety of transportation concerns listed in the survey. Issues related to truck and freight movement ranked lowest on a 5 (highest) to 1 (lowest) scale.

15 Minute City

Respondents tended to live close to a variety of community facilities, as noted in Figure 9. These may reinforce the relevance of a 15-minute concept within the types of neighborhoods that participants live in: generally characterized as suburban neighborhoods (40.5% of participants) and small towns (20.2%). Only 11% characterized themselves as living in an urban neighborhood.

Figure 9: 15-Minute City: Features within a 15 Minute Walk from Home

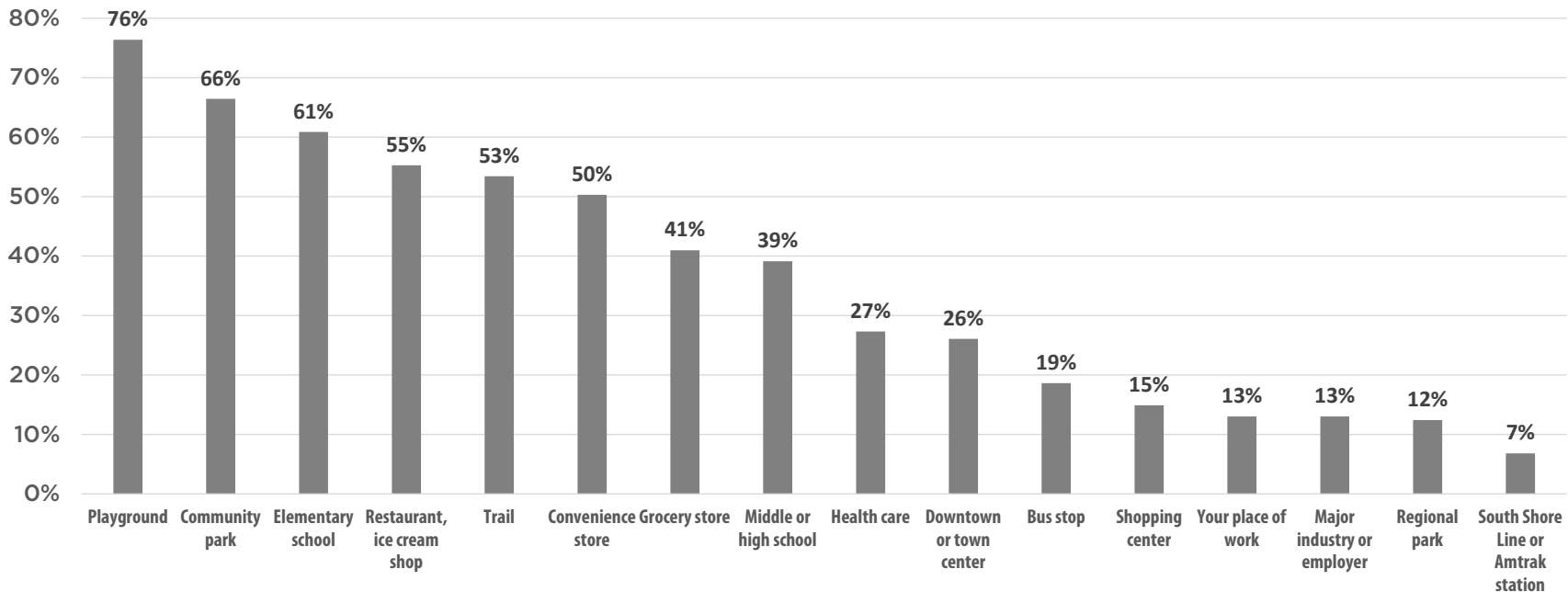
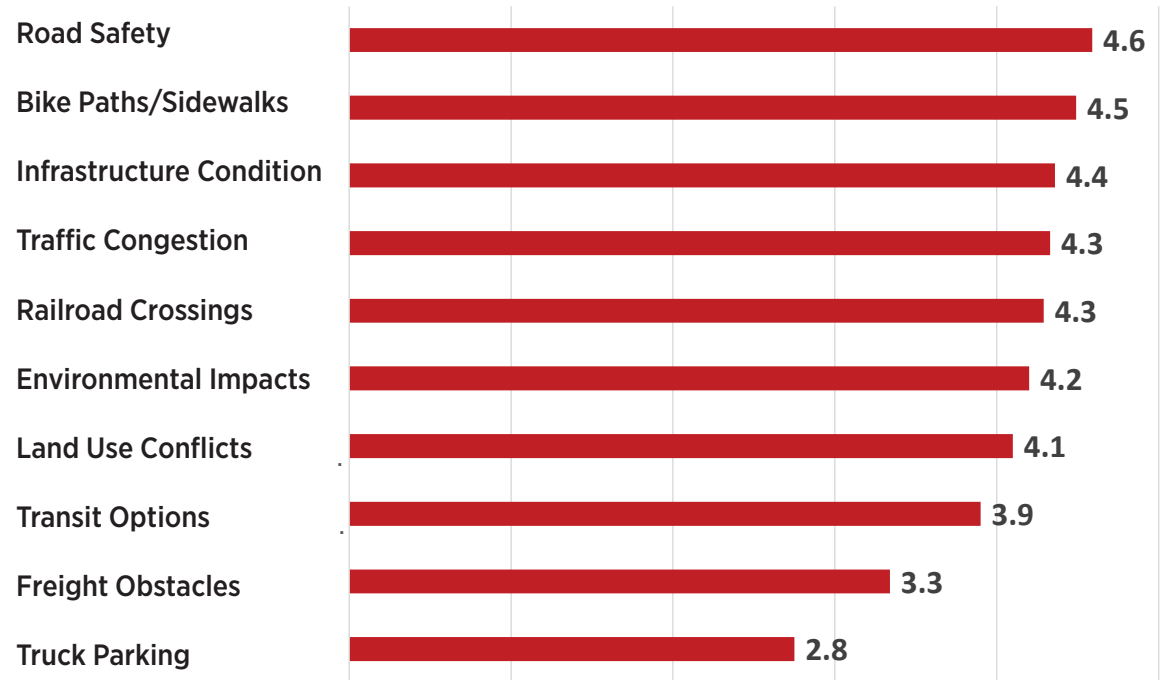


Figure 8: Transportation Issues of Greatest Importance



Destinations

On a 10 to 1 scale of relative importance of good bike and pedestrian access to destinations, destinations identified in the survey all ranked above “5.” But access to grocery stores and downtowns ranked highest, followed closely by parks and trails. Trails often are seen as discreet destinations, and travel for recreational purposes are still trips from a transportation planning perspective. Interestingly, schools ranked relatively low in comparison to other similar surveys, indicative of the dominance of kids being driven to school regardless of distance.

Frequency of Bicycle Use

Only about 25% of respondents reported regular use of bicycles for transportation or recreation – very high for the overall population but relatively low for a focused survey. On the other hand, later questions about infrastructure elicited responses from about four times the number of people who characterized themselves as regular or frequent bicyclists, and roughly equal to the “not never” responses to this question. This suggests a large number of survey participants in an “interested but concerned” category – people who would use bicycles more with better or more secure facilities.

Figure 10: Important Destinations for Pedestrian or Bicycle Transportation

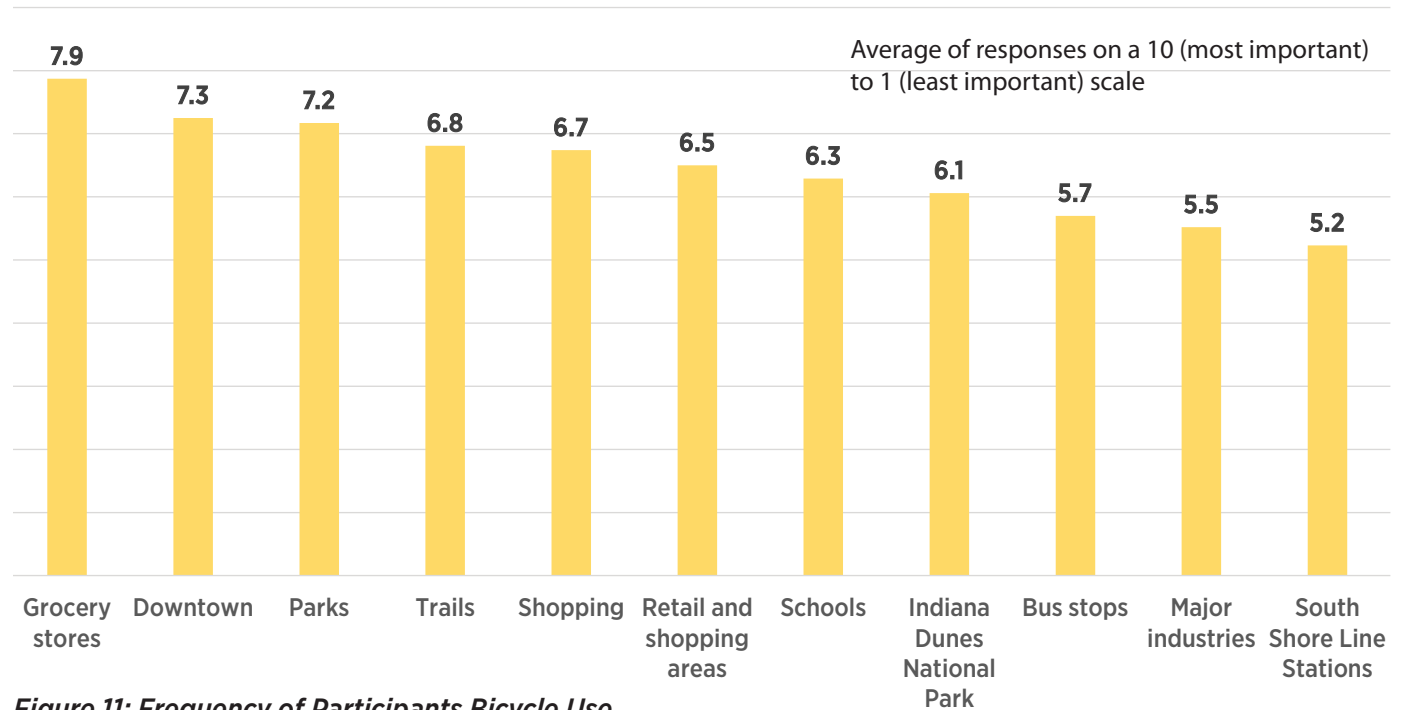
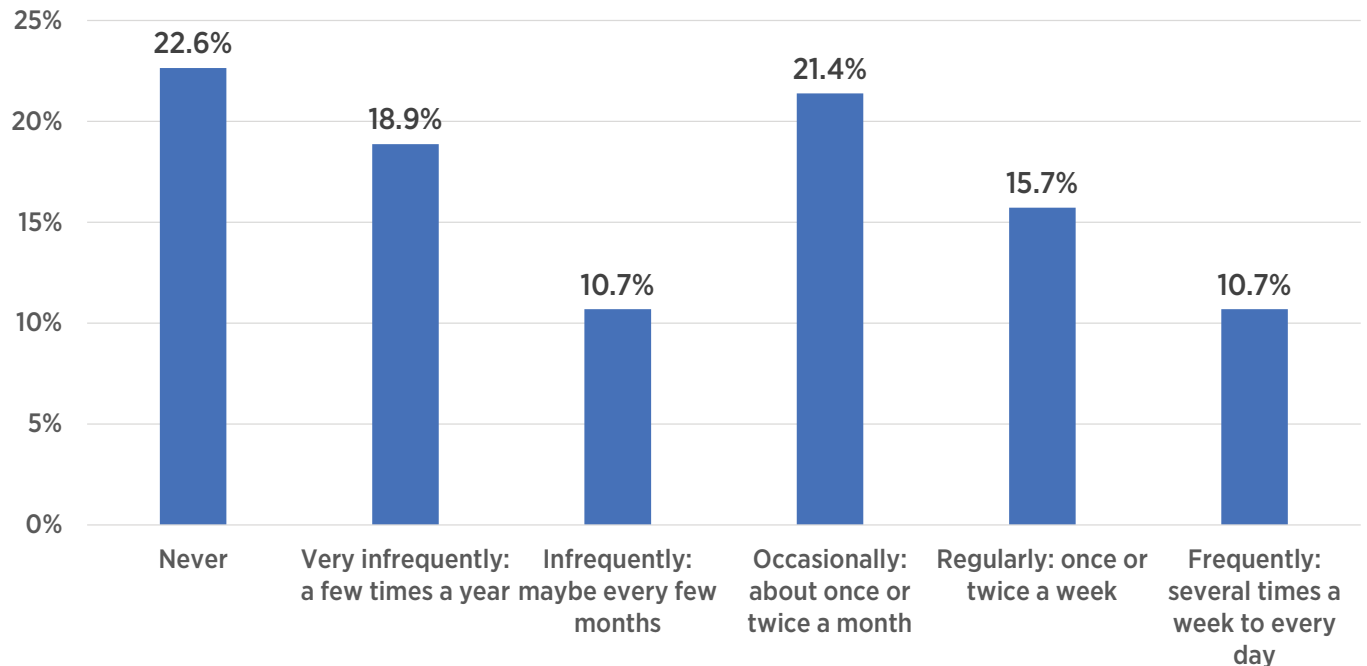


Figure 11: Frequency of Participants Bicycle Use



Purposes of Bicycle Trips

In line with the results of similar surveys, regular exercise and trips to park and recreation facilities lead the list of purposes for cycling. Only about 10% of respondents use bicycles for more utilitarian purposes – trips for work, errands, or community resources. School and shopping trips lag far behind, despite the results of an earlier question identifying grocery stores as an important destination for pedestrian and bicycle trips.

Use of Individual Trails

Of major regional trails in NWI, survey respondents report most frequent use of the Erie-Lackawanna Trail, followed by the Prairie Duneland and Pennsy Greenway. All three are in the western parts of the MSA, and correspond to the place of residence of the largest participant groups. Interestingly, the Prairie Duneland appears to receive somewhat higher use than its western extension, the Oak Savannah. This may reflect the Valparaiso market, the survey's largest individual response group, which is relatively separated from the E-L and Pennsy. The C&O, now mostly a short section of a future trail, is likely to experience much heavier use with strategic extensions.

Figure 12: Purposes of Bicycle Trips

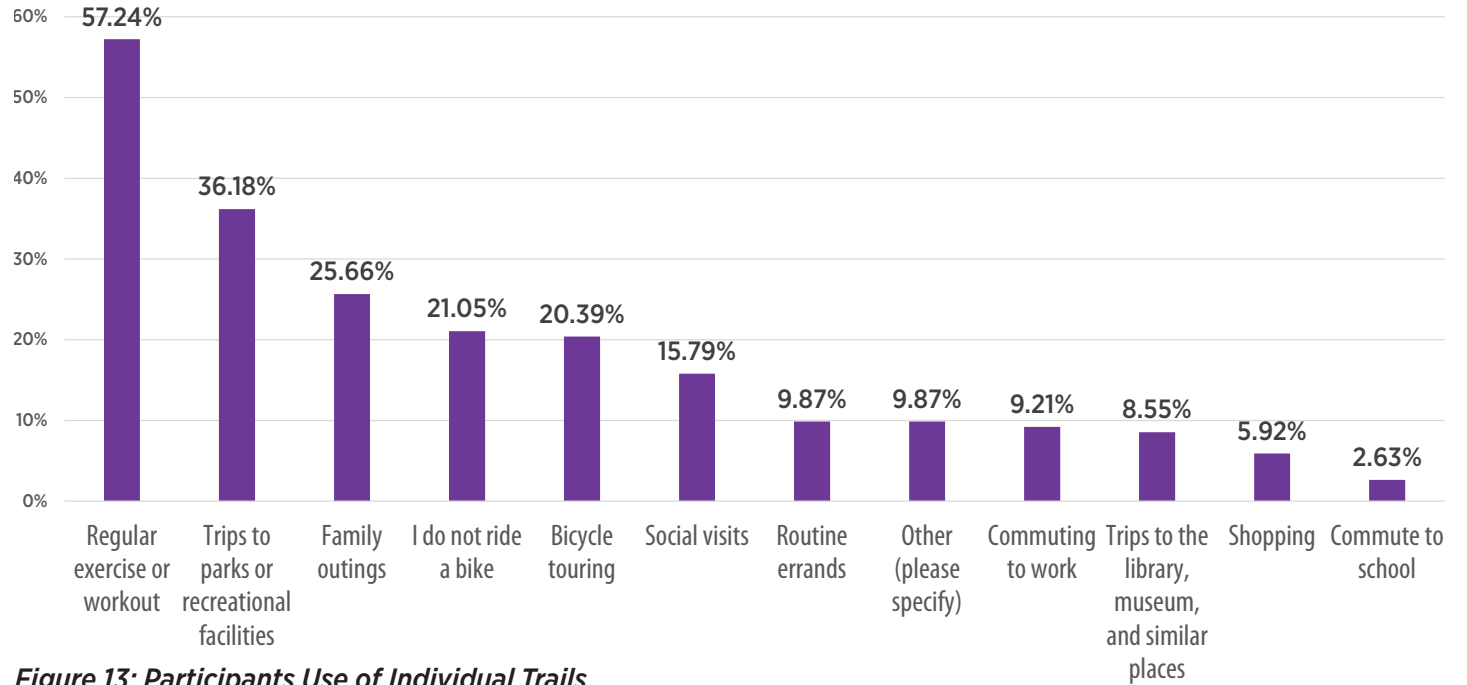
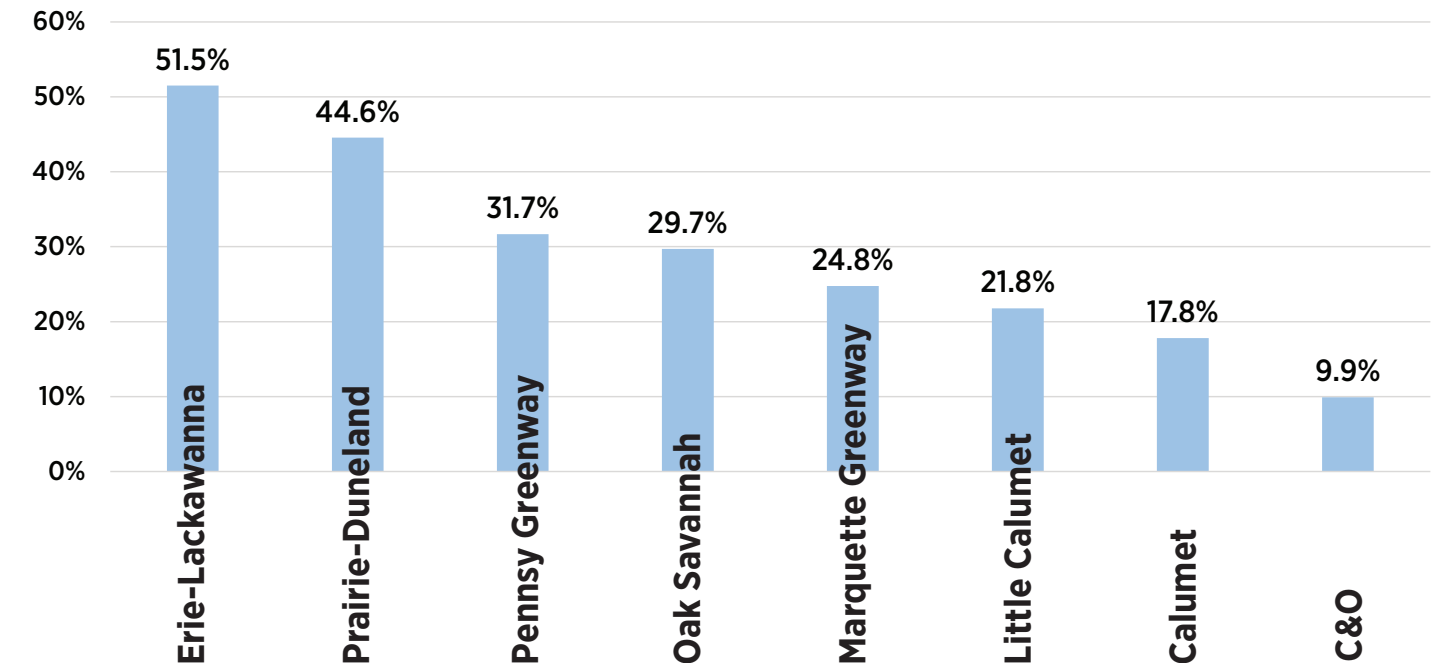


Figure 13: Participants Use of Individual Trails



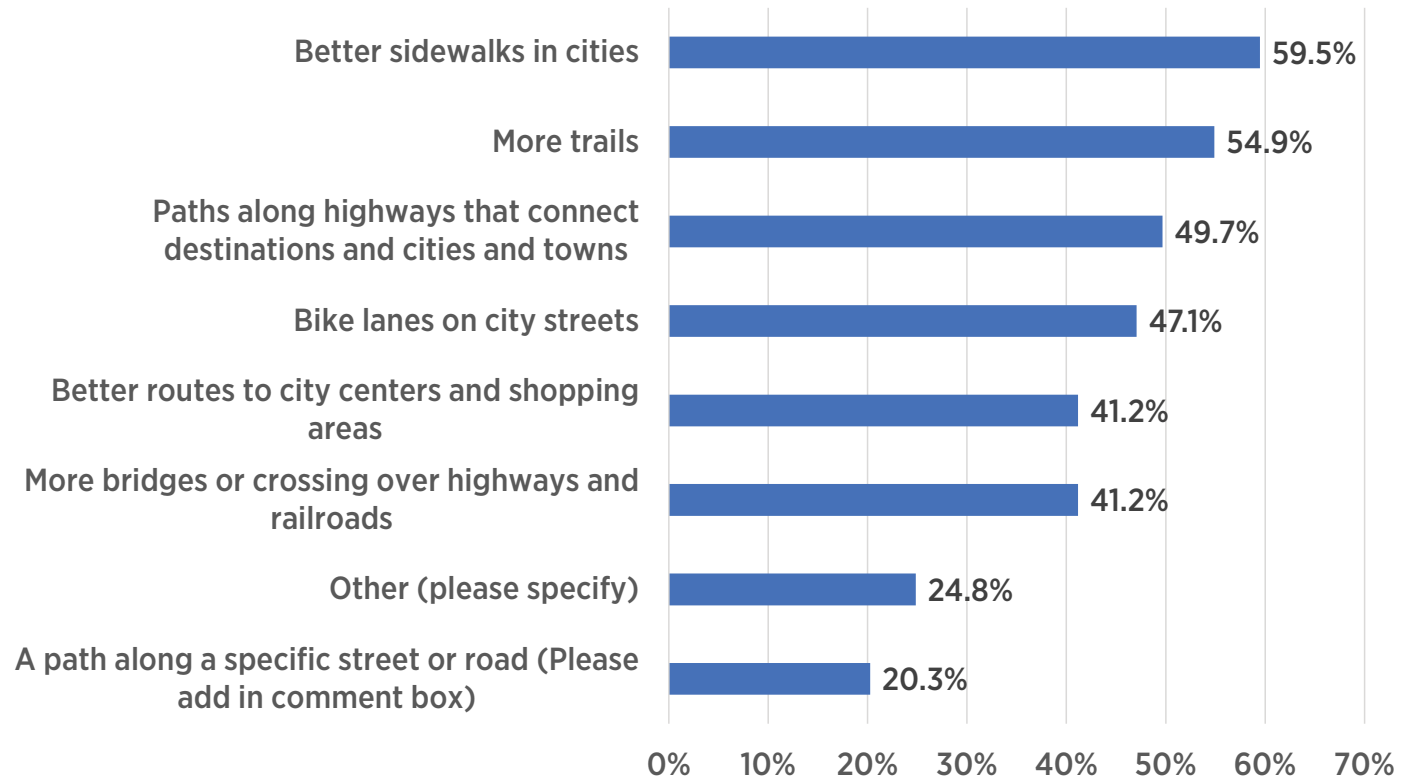
Most Important Improvements

Participants rated better sidewalks, more trails, and connecting sidepaths along roads as the most important bicycle and pedestrian improvements, followed closely by additional bike lanes on city streets. This suggests a preference for separated facilities, although on-street infrastructure also had a significant number of advocates.

Evaluation of Infrastructure Solutions

The results shown in Figure 14 lead naturally into a series of questions through which participants assessed different types of physical facilities. The survey asked respondents to identify whether that facility was comfortable for all users, for most adult users, for the individual respondent but not for most people, for experienced cyclists only, or for no one – essentially an ascending order of exclusivity. This provides valuable input in evaluating candidate streets and roads and proposing design solutions that meet the needs of the greatest number of people. The following pages present the results of this evaluation.

Figure 14: Most Important Improvements



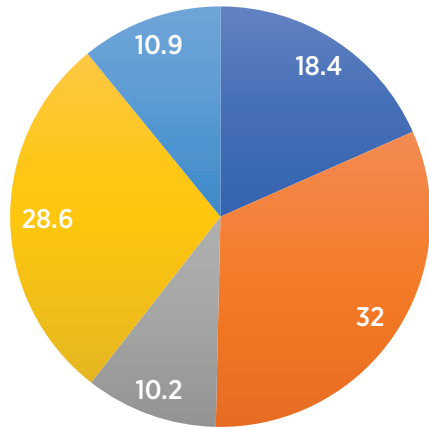
Lakewood Link in Valparaiso. This is an example of a sidepath along a major street, in this case Campbell Street leading to a major park. This would eventually be incorporated into the Dunes Kankakee Regional Trail.

BICYCLE BOULEVARD

Low traffic street with features like markings, stop preferences, intersection improvements to increase bicycle and pedestrian safety



Example: Berkeley, CA



- Good for all
- Good for most adults
- Good for me but not all
- Experienced only
- No one

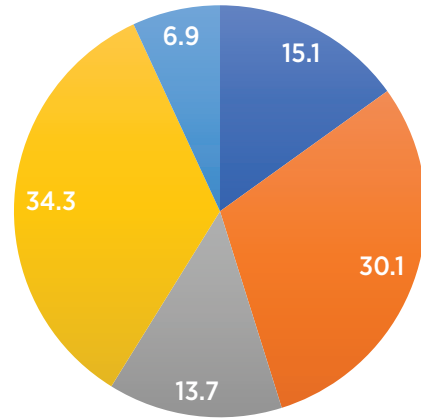
Positive Score: 68.4

STANDARD BIKE LANE

Moderate volume street with painted white line and bike lane pavement markings.



Example: Bettendorf, IA



- Good for all
- Good for most adults
- Good for me but not all
- Experienced only
- No one

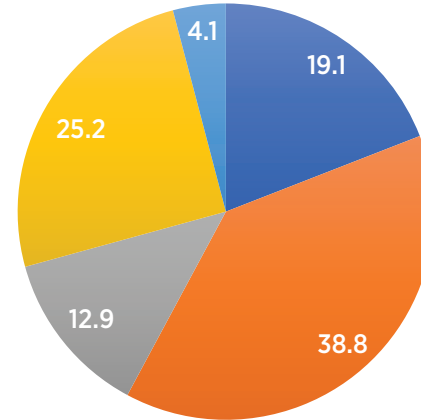
Positive Score: 60.2

GREEN BIKE LANE

Moderate volume mixed use street with green painted lane in conflict zones and through intersections



Example: Wauwatosa, WI



- Good for all
- Good for most adults
- Good for me but not all
- Experienced only
- No one

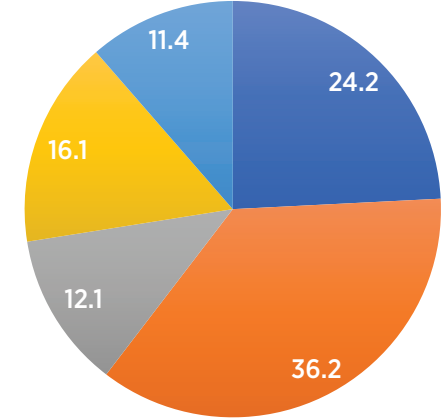
Positive Score: 77.0

NEIGHBORHOOD STREET

Low volume local street without other modifications. Occasional speed bump for traffic calming.



Example: Merriam, KS



- Good for all
- Good for most adults
- Good for me but not all
- Experienced only
- No one

Positive Score: 84.6

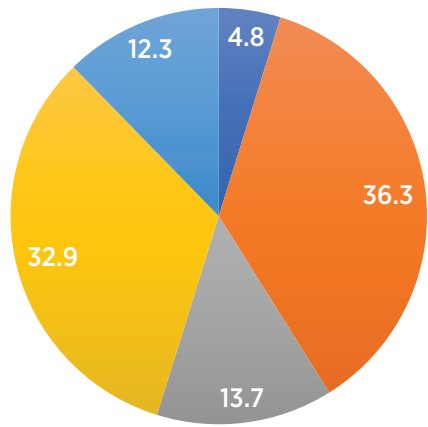
Positive score = (2*% reported good for all) + (% reported good for most adults)

BUFFERED BIKE LANE

Medium volume street with parking and painted buffer between bike lane and travel lane.



Example: Hammond, In



- Good for all
- Good for most adults
- Good for me but not all
- Experienced only
- No one

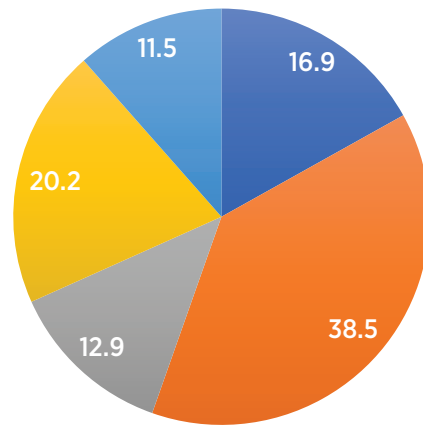
Positive Score: 45.9

CALMED STREET

Low volume street modified with chicanes, bump outs and other features to slow traffic



Example: Merriam, KS



- Good for all
- Good for most adults
- Good for me but not all
- Experienced only
- No one

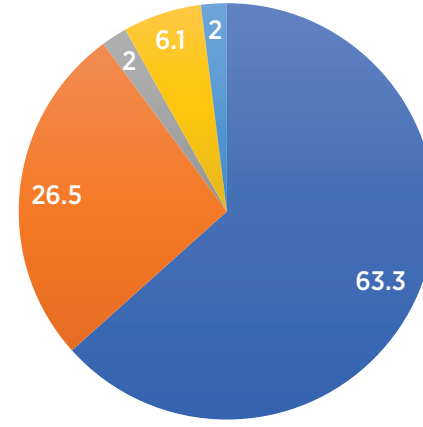
Positive Score: 72.3

OFF-STREET SEPARATED LANE

Medium volume street with bike lane above curb, adjacent to but differentiated from sidewalk



Example: Conway, AR



- Good for all
- Good for most adults
- Good for me but not all
- Experienced only
- No one

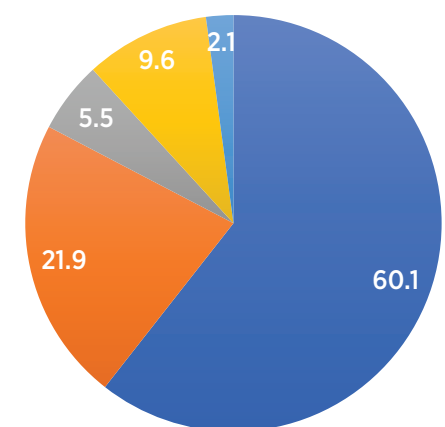
Positive Score: 153.1

SIDEPATH

Medium volume street with adjacent off-street shared use path and minimum driveway conflicts



Example: Valparaiso, IN



- Good for all
- Good for most adults
- Good for me but not all
- Experienced only
- No one

Positive Score: 141.9

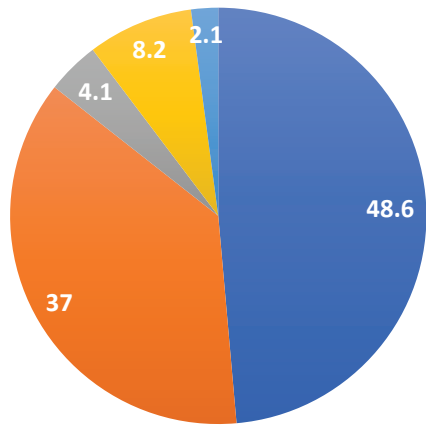
Positive score = (2*% reported good for all) + (% reported good for most adults)

SIDEPATH

Medium to high volume commercial street with adjacent off-street shared use path and pedestrian crossing refuge



Example: Shawnee, KS



- Good for all
- Good for most adults
- Good for me but not all
- Experienced only
- No one

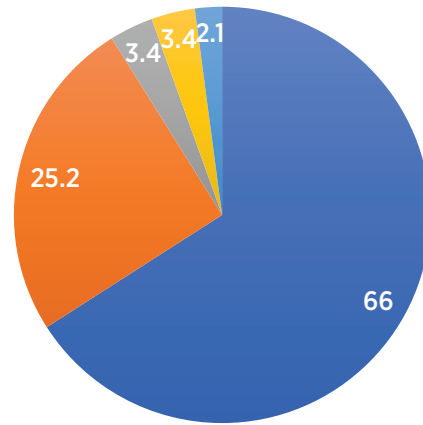
Positive Score: 134.2

SIDEPATH

Medium volume rural or low-density road with adjacent off-road shared use path and signed and enhanced crossings



Example: Saint Louis County, MO



- Good for all
- Good for most adults
- Good for me but not all
- Experienced only
- No one

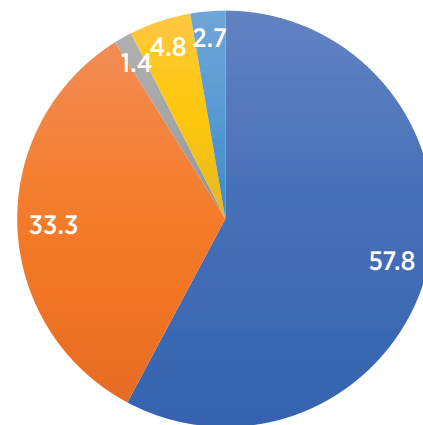
Positive Score: 157.2

CYCLE TRACK

Medium volume downtown street, two-way cycle track with physical separation



Example: Lincoln, NE



- Good for all
- Good for most adults
- Good for me but not all
- Experienced only
- No one

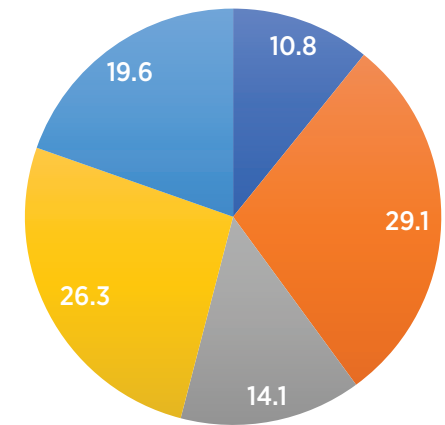
Positive Score: 148.9

WOONERF

Shared use neighborhood street with features that slow cars to pedestrian speed, designed for shared use



Example: Delft, The Netherlands



- Good for all
- Good for most adults
- Good for me but not all
- Experienced only
- No one

Positive Score: 50.7

Positive score = (2*% reported good for all) + (% reported good for most adults)

Destinations

The mission of a good transportation network is ultimately to get people where they want to go in a direct, safe, and hopefully pleasant fashion. Trails are something of an unusual component, because they have generally been viewed in the United States from a recreational perspective – hence the term “recreational trails” that causes grimaces from those who think about multi-modal transportation. But this is understandable – trail corridors are often opportunistic, using streams and lakes, abandoned rail corridors, utility corridors, parks, and occasionally the gifts of or exactions from developers. These opportunities may or may not serve destinations. Northwest Indiana is fortunate in this regard, because its railroads actually served and connected town centers and generated population density. Building a regional active network from this great resource should have recreational benefits, but the system should also have the ability to getting people where they want to go.

This section presents a series of maps that located a sample of destinations that appeared most important to survey respondents – city and town centers, where civic life is concentrated; grocery stores that signal places that have clusters of neighborhood and community-based retailing; and county parks, large community parks, and nature preserves, as well as Indiana Dunes National Park. To these, the destination maps add high schools that frequently double as major community activity and sports centers and college and university campuses. This is not a complete list of destinations, but it does begin to suggest the structure of a destination-based network that connects destinations to NWI’s extensive and growing trail system.



*Top: Interurbans in NWI, 1926,
Above: Downtown Porter*

Figure 15: Destinations: Centers/Groceries/SSL Stations/Small Places

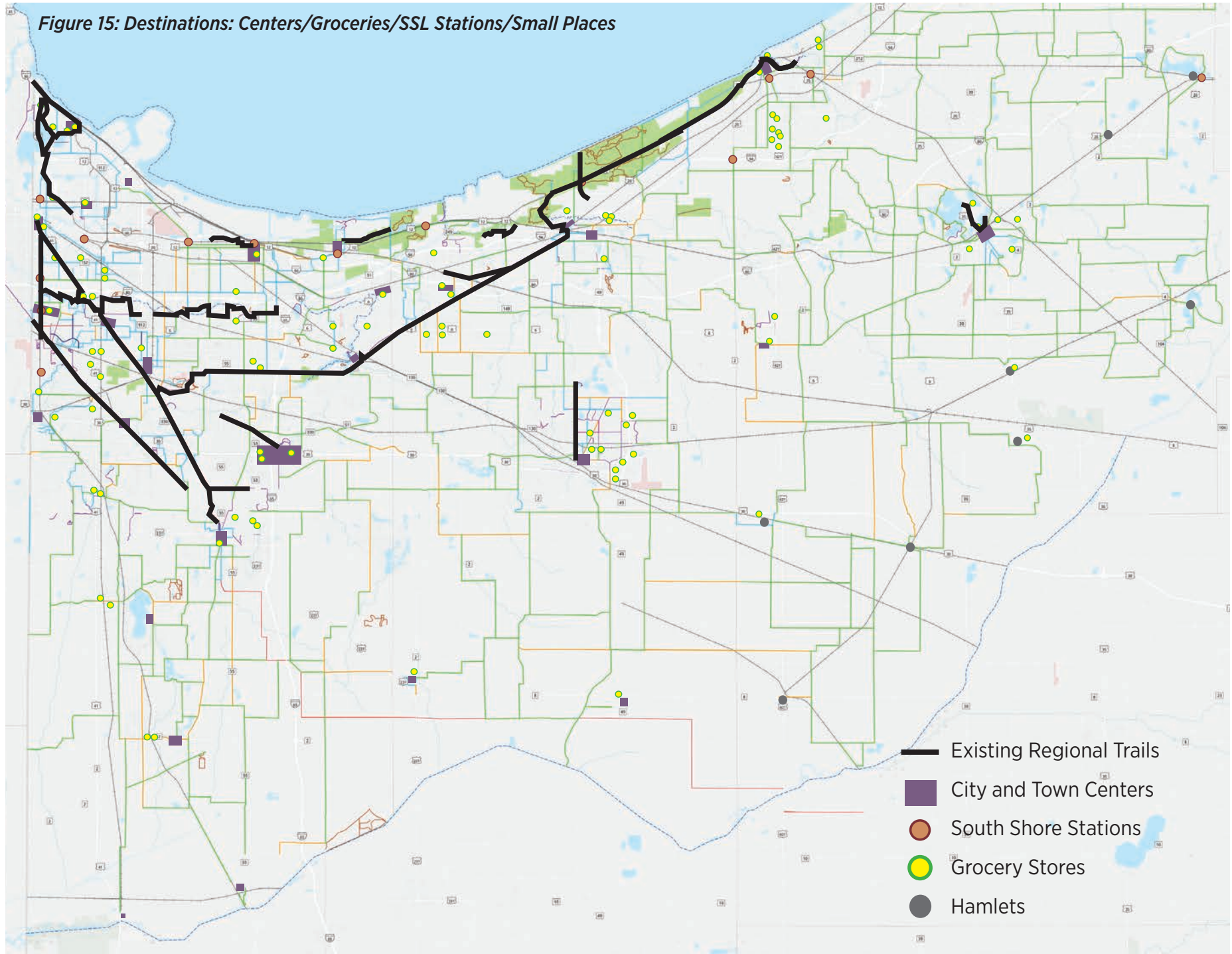


Figure 16: Destinations: Large Parks/Nature Preserves and Natural Areas

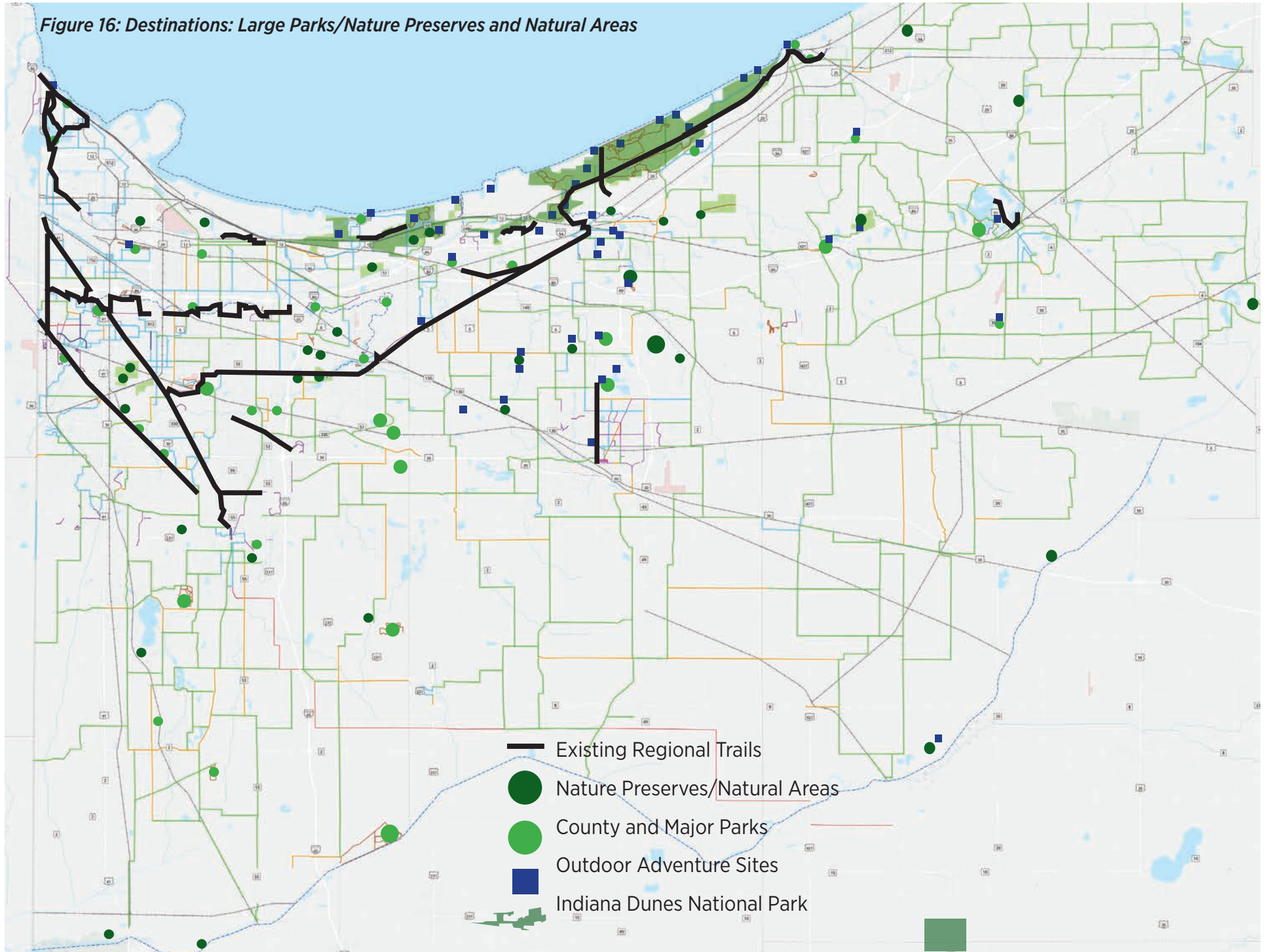
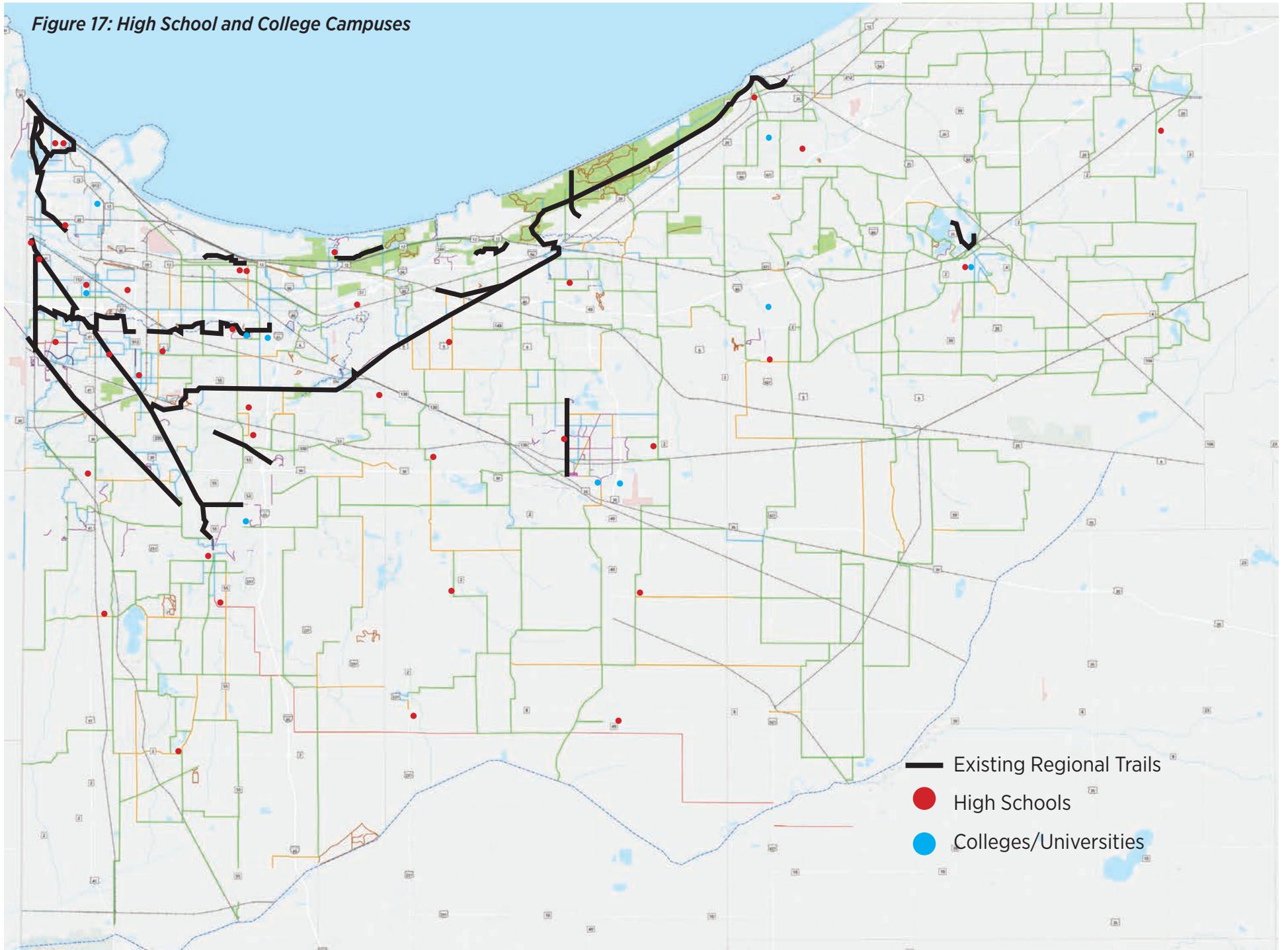


Figure 17: High School and College Campuses



Road Typologies

Because the active transportation network will be composed of two major elements – trails and roadways – the character of NWI’s roads, including width, traffic volume, geometry, grades, and other factors will help determine routes and the framework of the network. This will also help define the nature and expense of projects needed to make them a functional and comfortable part of the network. For example, as traffic volumes increase on a road, the need for separation from vehicular traffic also increases.

The MSA’s secondary and tertiary roads are a major asset in the formation of a network. Most section line roads are paved and some segments of half-section lines roads are also hard surfaced. Inclusion in the active network will help ensure a level of maintenance appropriate to this role.

The roadway typology displayed in Figure 18 is the result of extensive fieldwork on both two and four wheels, and forms a system to both evaluate candidate roads and determine appropriate infrastructure and priorities. In many cases, these roads may parallel future trails, but may provide a low cost, short- to medium-term option that serves before the more costly but desirable trail facility is built. Road types in Northwest Indiana range from extremely low volume “lanes” to major arterials, some of which may be necessary when alternative ways to serve major destinations exist.





Figure 18: Network Road Typology

Type	Characteristics	Infrastructure Direction	User Markets
Country Lane	<ul style="list-style-type: none"> Narrow 2-lane Very low volume Tight landscape. surface drainage close to the roadway ADT less than 1,000 vpd 	<ul style="list-style-type: none"> Route designation Advisory signage Wayfinding 	General use for most people
Rural County Road	<ul style="list-style-type: none"> Standard two-lane, unshouldered Moderate to low volume <3,000 vpd Surface drainage, sometimes with space in the ROW 	<ul style="list-style-type: none"> Route designation Shoulders or sidepath on critical segments with higher volumes Advisory signage Wayfinding 	<ul style="list-style-type: none"> General use at lowest volumes or with sidepaths More experienced cyclists on high volumes without separated infrastructure
Principal County or Inter-urban Roads	<ul style="list-style-type: none"> Standard two-lane, usually unshouldered but sometimes with shoulders High to moderate volume <5-7,000 vpd Surface drainage, often with space in the ROW 	<ul style="list-style-type: none"> Route designation Shoulders or sidepath Advisory signage Wayfinding 	<ul style="list-style-type: none"> General use with sidepaths Experienced cyclists only without separated infrastructure
Assembled local street routes	<ul style="list-style-type: none"> Urban 2-lane Very low to low volume Urban section with or without sidewalks Parallel to major corridors Continuous routes involve assembly of appropriate streets without direct continuity and little misdirection 	<ul style="list-style-type: none"> Route designation with combined street segments to provide continuity Advisory signage Wayfinding with line identification “Bicycle boulevard” infrastructure – traffic calming, stop preference Sidewalks Intersection design for pedestrians and bikes at arterial crossings 	General use for adults or families with supervision



Figure 18: Network Road Typology

Type	Characteristics	Infrastructure Direction	User Markets
Urban Collectors	<ul style="list-style-type: none"> Urban 2-lane, sometimes with wide street channels Moderate volume < 7,000 vpd* Urban section, usually with sidewalks Good continuity 	<ul style="list-style-type: none"> Enhanced standard or protected bike lanes Sidepaths at higher volumes Advisory signage Wayfinding Sidewalks Intersection design for peds and bikes at arterial crossings 	<ul style="list-style-type: none"> General use with sidepaths or protected bike lanes Street comfortable cyclists with standard lanes Experienced cyclists without supportive infrastructure
Arterials with excess capacity	<ul style="list-style-type: none"> Four or five-lane, usually unshouldered urban section Moderately high volume <15,000 vpd Signalized or 4-way stop intersections 	<ul style="list-style-type: none"> Route Designation Road diet with bike lanes Advisory signage Wayfinding Sidewalks Intersection design for peds and bikes at arterial crossings 	<ul style="list-style-type: none"> General use with sidepaths or protected bike lanes Street comfortable cyclists with standard lanes Experienced cyclists without supportive infrastructure
Major Arterials	<ul style="list-style-type: none"> Urban multi-lane, sometimes with medians High volume > 15,000 vpd Rural or urban section without sidewalks Sometimes necessary for access to destinations or continuity 	<ul style="list-style-type: none"> Shared use idepaths Special treatment at driveway and street intersections Advisory signage Wayfinding with line identification Intersection design for peds and bikes using refuge medians 	<ul style="list-style-type: none"> General use for adults or families with supervision No user group without infrastructure
Trails	<ul style="list-style-type: none"> Exclusive off-road routes Most regional rail trail opportunities have been identified Gap fillers Utility right of ways and other non-rail corridors 	<ul style="list-style-type: none"> Completion of planned trails New regional trail development to serve southwest growth area Trail segments to fill gaps in continuity 	<ul style="list-style-type: none"> General use

Network Potential

The maps on the following pages present network concepts based on the analysis and research completed to date and summarized in this working paper. While we have investigated most of these corridors, some will drop out as options receive further evaluation. However, this will serve as a starting point for further consideration and detailing in Part Two of the project.

From an overall policy point of view, the network concept focuses on these unifying principles:

The ultimate network should connect the central or downtown district of each community, large and small, and should be seen as a tool for their continued economic and quality of life development.

The regional network will focus on providing access to:

- County parks and major regional recreational and outdoor resources.
- South Shore Line stations, including both the existing South Bend line and the West Lake Corridor.
- Regional trails, acting as branches to the trunks that the trails constitute.
- Major destinations in Indiana Dunes National Park and public beaches.
- High school and college/university campuses. Middle schools are also significant destinations but are usually within the purview of local trail or active systems.
- Internal pedestrian and bicycle access to major commercial and mixed use nodes.

- Fifteen minute access to local family destinations such as elementary schools and neighborhood parks. This again is likely to be implemented by local communities. However, the Active Transportation Element will provide guidance to communities toward planning and implementing for access within fifteen minute rings.
- Major tourism facilities and connections to Illinois trails.
- The American Discovery Trail, Great American Rail Trail, and United States Bicycle Route corridors within the NWI area.

- Growth and rural areas that are outside the reach of the existing trail network.

In addition to potential corridors and routes, the concept maps on the following pages display 2021 average daily traffic when available for the Indiana Department of Transportation, potential areas and corridors for detailed Part Two study, and other information.



Figure 19: Composite Concept Network Map

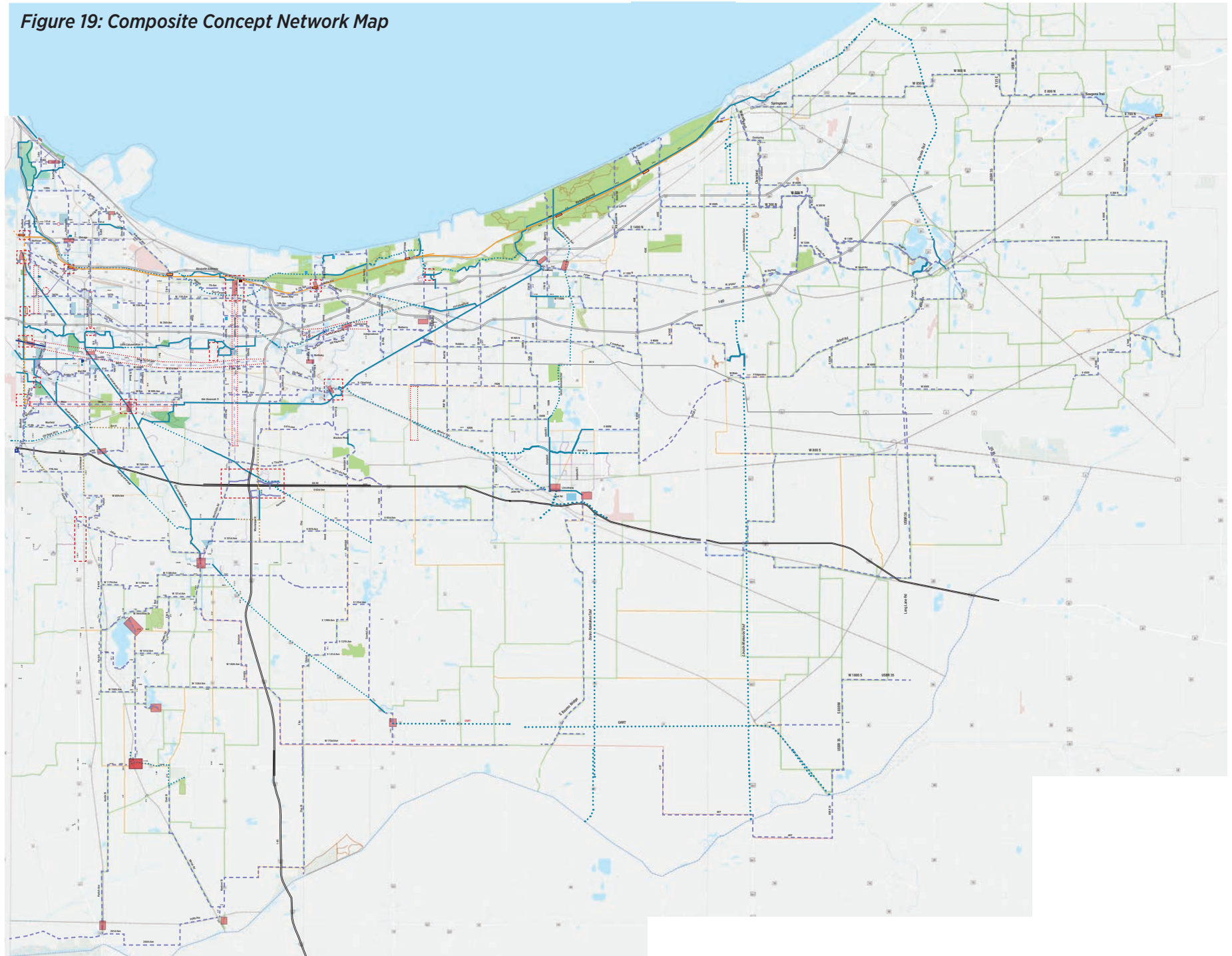


Figure 20: North Lake County Concept Network Map



Figure 22: North Porter County Concept Network Map

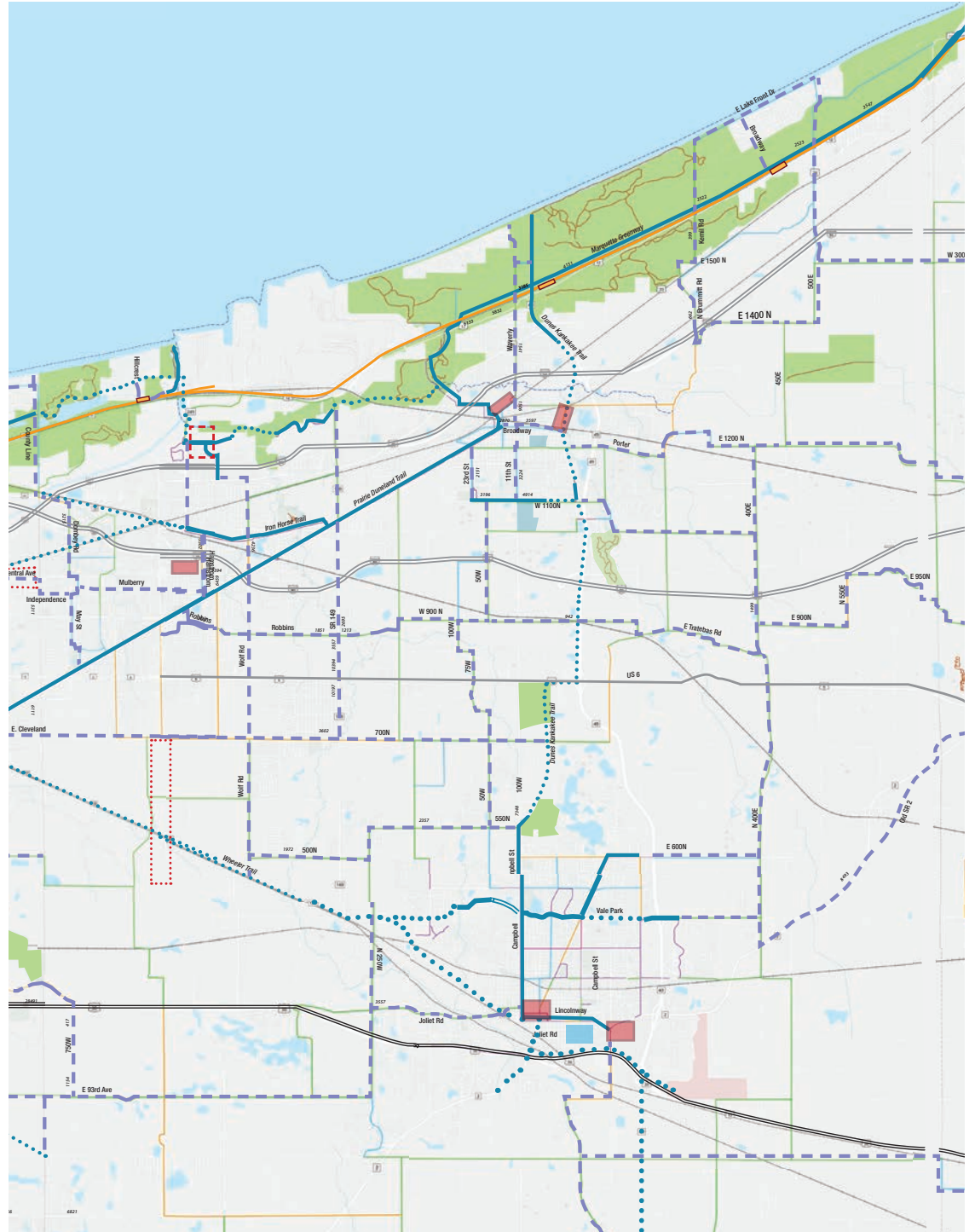


Figure 23: South Porter County Concept Network Map

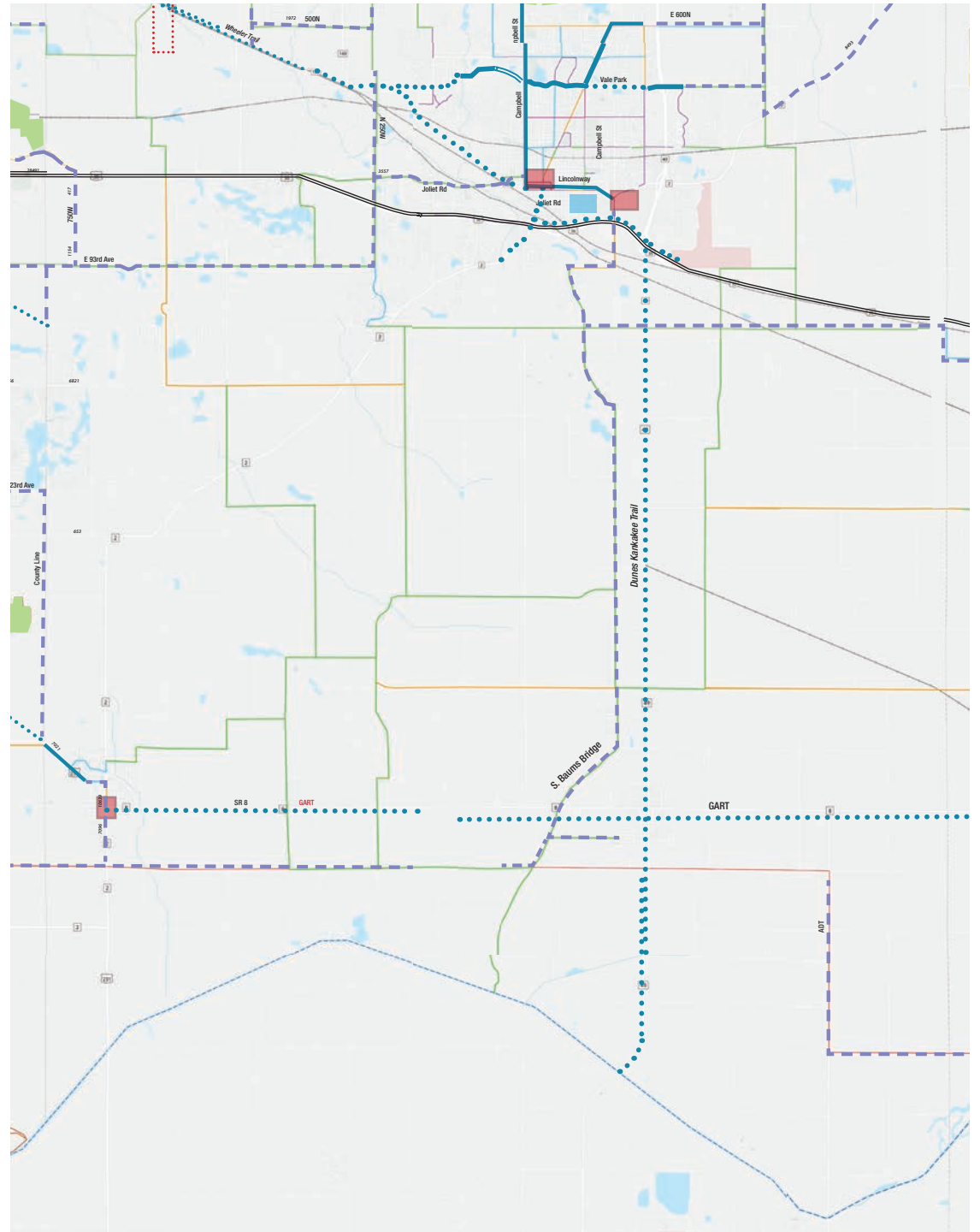


Figure 24: South La Porte County Concept Network Map

