The selection of routes is based on a person who bicycles user experience. The directness of the routes as well as the severity of slope have all been considered in route selection. In addition, population density and common destinations and activity hubs, whether they be to schools, community centers, areas with large clusters of jobs and business districts have all been identified as key areas for the bikeways. Distance has played a key role in this plan as well. Most bicyclists will not travel further than 3 miles per trip as part of their everyday routine. Therefore, the plan focuses on shorter distance trips. However, the plan does include the longer distance routes that connect between the major hubs. In the end, these bicycle have been devised not just for the small percentage of people who are comfortable riding with motor vehicles with no separation or protection, but for people of all ages and abilities who would bicycle if there were safe and comfortable routes available to them.

Bike Lane on Tower Avenue in Superior, WI. Commercial districts are regular destinations for people, and ideally set up to move around via a bicycle due to the close distances between destinations.

All streets were mapped out based on their percent grade.

- 10% grades—bike routes on streets with slopes greater than 10% were only considered if there was no reasonable alternative, but would continue for no more than one block in length.

-13% grades—bike routes on streets with slopes greater than 13%

Map Legend Definitions

Bikeway Types

Future Bikeway Facility—this is any facility, on or off-street, that will require reconfiguration of the existing roadway design. Determination of the particularly facility type will be made at the time of the project, and could possibly include pilot or interim designs.

Off Road Multi-Use Path—a minimum of 8-foot wide path that accommodates multiple self-propelled devices, including but not limited to, pedestrians walking, bicycles, scooters, strollers, skateboards, inline skates, etc.

On Street Bikeable Shoulder—a minimum of 3-foot wide shoulder space on the side of a roadway along roadways with low number of existing and potential bicyclists. Shoulder width should depend on a number of factors including traffic volumes, speed of traffic and natural topographical challenges.

On Street Bike Lane—a designated space on the roadway, usually through striping, signage and pavement markings.

On Street Shared Lane—a travel lane that is shared by both motorists and bicyclists.

Core Areas

Commercial Hub—

Complete Streets Priority Area—

Job Cluster—

1-mile Buffer Zone—

Destination

Civic Building—

Grocery Stores—

K-12 Schools—

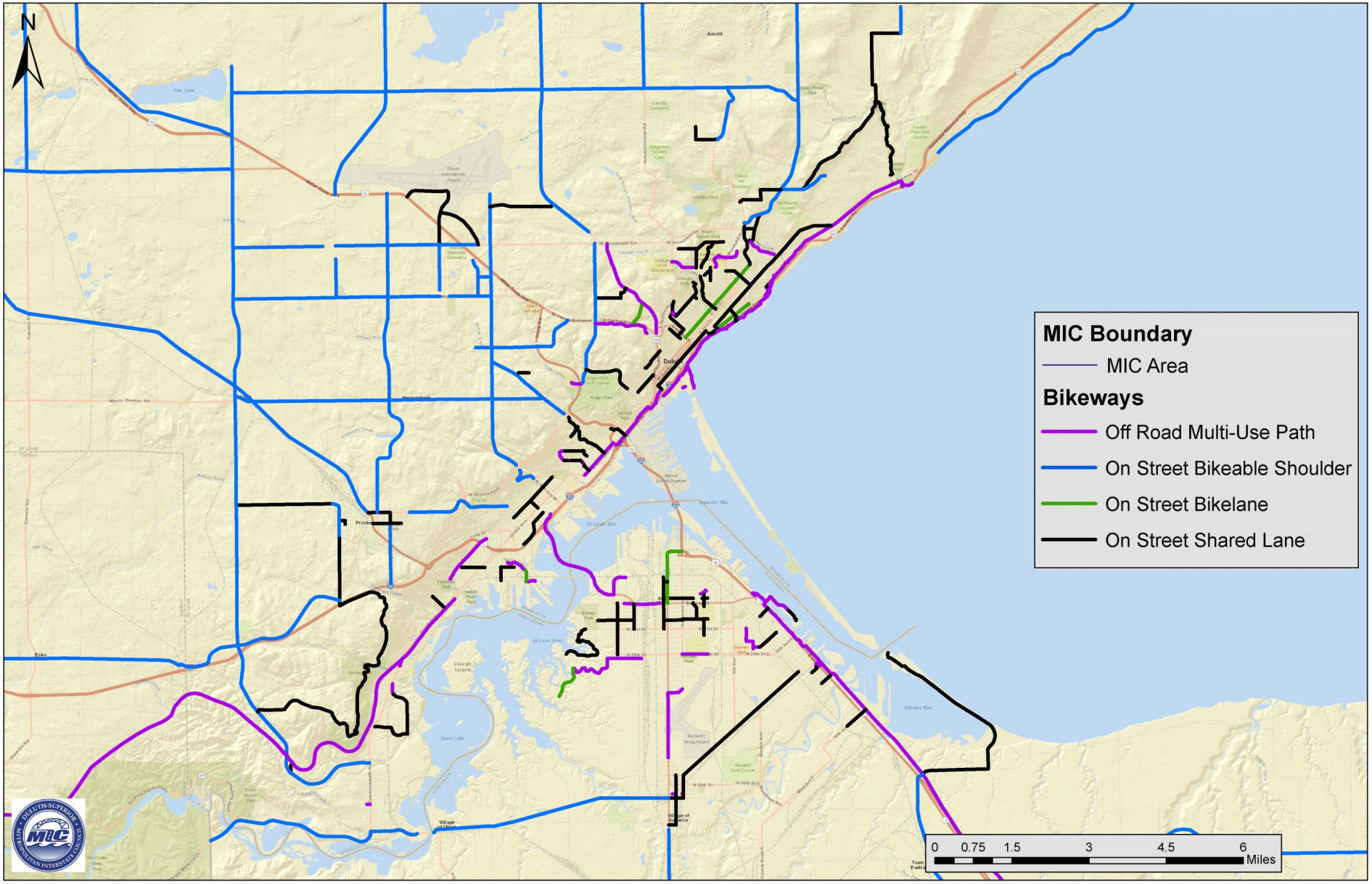
Key Destinations—

Study

Study Route—

Study Corridor—

All Ages & All Abilities Existing Bikeway System



Existing Bikeways System—all ages & abilities

The existing bikeways system depicts the routes that serve people of all ages and abilities currently. These routes take into account the type of bikeway, volume of traffic, speed of traffic and width of bikeway. Routes with existing wayfinding signage or bikeway pavement markings were not automatically included in this existing bikeway system map. For example, Kenwood Avenue in Duluth and 28th Street in Superior have sharrows marked on the pavement, yet both are excluded from this as neither bikeway is an all ages & abilities. Both streets have a high enough traffic volume that precludes it from being included. For reference, see the NACTO guide on "Designing for all ages and abilities".

There are over 50 gaps in the existing bikeways network. The majority of these gaps have alternate routes available on streets with low traffic volumes and low speeds. However, some routes have no reasonable alternative for a person bicycling as part of their everyday routine.

Close the gaps, sooner than later

A list of the major gaps has been created. These are the top places to focus resources on closing these gaps as soon as possible. With time being of essence, solutions to closes these gaps may include trying out pilot projects or interim projects until a roadway is scheduled for major work or funding becomes available.

Existing Bikeways System Characteristics:

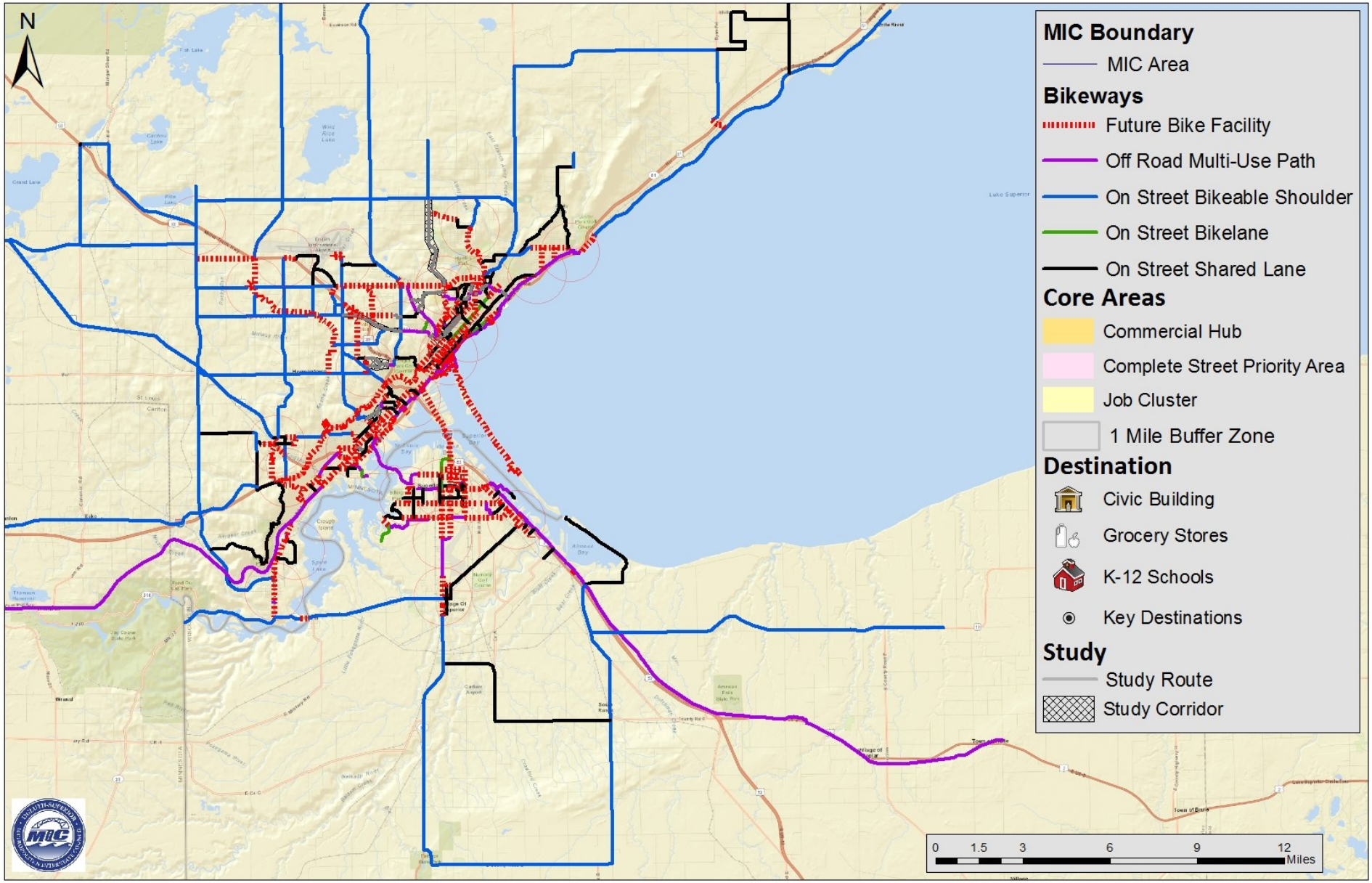
- Shared Lanes = 84 miles
- Conventional Bike Lanes = 5 miles
- Bikeable Shoulders = 218 miles
- Multi-use Paths = 64 miles

Total Mileage of Existing Bikeways = 371 miles

Top 10—Existing Major Gaps in the Bikeway System

1. London Rd/Superior St—between 6th Ave West to 14th Ave E and 21st Ave E to 26th Ave E
2. Lake Ave —Superior Street to Lift Bridge
3. St. Marie St—from Vermillion Rd to Carver Ave
4. Downtown Superior to UWS—Tower Ave to Catlin Ave
5. Grand Ave—63rd Ave W to Central Ave
6. Central Entrance—Basswood Ave to Decker Rd
7. Proctor—along 2nd Street from Hwy 2 to 9th Ave
8. Arrowhead Rd—from Kenwood Ave to Haines Rd
9. Woodland Ave—from 21st Ave E to Anoka St
10. Ugstad—Falcon Dr to Roosevelt Dr

Future 2045 Bikeways Map—25 year vision



Future Bikeways System—25-year vision

The Future Bikeways System map is a vision of what the system will ideally look like 25 years from today. Is it possible to complete this ambitious vision by then? Over the next 25 years, all major roadways in the area will have some level of improvement, from resurfacing to full reconstruction. This is the optimal time for incorporating bikeway facilities. Therefore, yes it is possible to accomplish this vision.

This plan identifies the existing various bikeway types as well as calls for new bikeways on streets that do not currently have one.

Future Bikeway Facility

The plan calls for a bikeway along this corridor. However, the type of bikeway is undetermined at this time. When it is determined to undertake a project, whether it be a stand alone bikeway project or part of a larger resurfacing or reconstruction project, then a deeper level of analysis will be conducted to determine the exact improvement.

The improvement could be an on or off-street or mix, but will require some level of reconfiguration of the existing roadway design. Determination of the particularly facility type will take robust public and stakeholder engagement and could possibly include demonstration projects as well as pilot or interim designs.

Future Bikeways System—25-year vision

The Future Bikeways System map is a vision of what the system will ideally look like 25 years from today. Is this ambitious vision possible to accomplish by then? Over the next 25 years, all major roadways in the area will have some level of improvement, from resurfacing to full reconstruction. This is the optimal time for incorporating bikeway facilities.

With a focus of this plan on shorter distance trips, all the major commercial and neighborhood hubs and job clusters have been identified in this plan. The following series of maps depicts each hub and the recommended routes in that hub. Most bicycle trips people will take are shorter distances and therefore focusing on and improving the routes with each hub area is priority.

Bikeway Types

This plan identifies the existing various bikeway types as well as calls for new bikeways on streets that do not currently have one. Here is the definitions of the various bikeway types:

Future Bikeway Facility—this is any facility, on or off-

Trip Generation—Activity Hubs

Trip Generation—Activity Hubs

With a focus of this plan on shorter distance trips, all the major commercial and neighborhood hubs and job clusters have been identified in this plan. The following series of maps depicts each hub and the recommended routes in that hub. Most bicycle trips people will take are shorter distances and therefore focusing on and improving the routes with each hub area is priority.

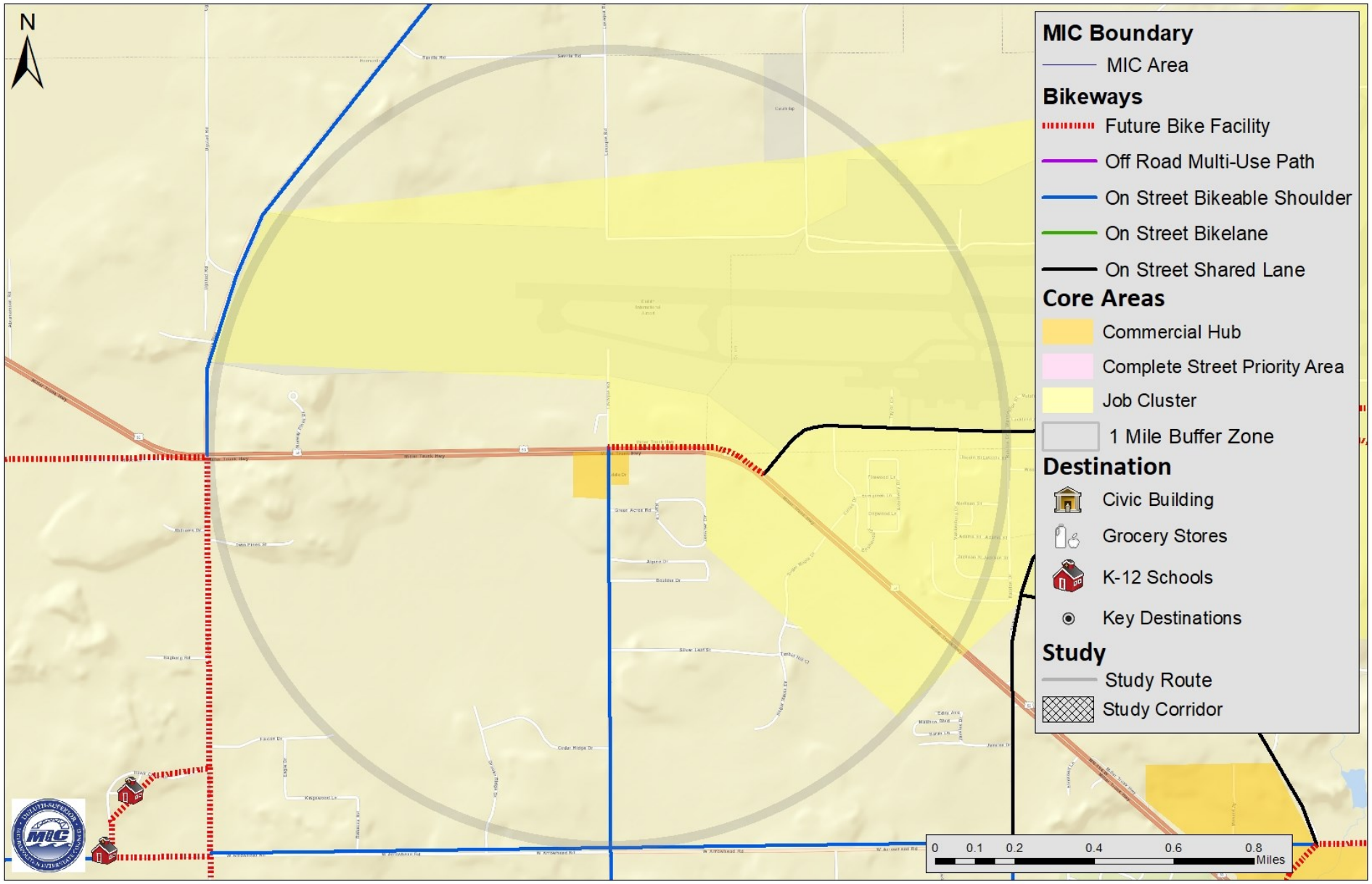
Trip

Future Bikeway Facility—this is any facility, on or off-street, that will require reconfiguration of the existing roadway design. Determination of the particularly facility type will be made at the time of the project, and could possibly include pilot or interim designs.

Off Road Multi-Use Path—an 8-12-foot wide path that accommodates multiple self-propelled devices, including but not limited to, pedestrians walking, bicycles, scooters, strollers, skateboards, inline skates, etc.

On Street Bikeable Shoulder

MAP 4.1: Airport Zone



Top Priorities

1. Hermantown Community Center
2. Airport jobs to hub (closest) Hermantown market plan
3. Airport job cluster to residential/ Duluth Heights—population density

One Mile Buffer Population: 1724

Notes:

The population within this airport zone encompasses a Federal Prison. Of the total population, 629 of the 1724 are inmates and not potential bicyclists.

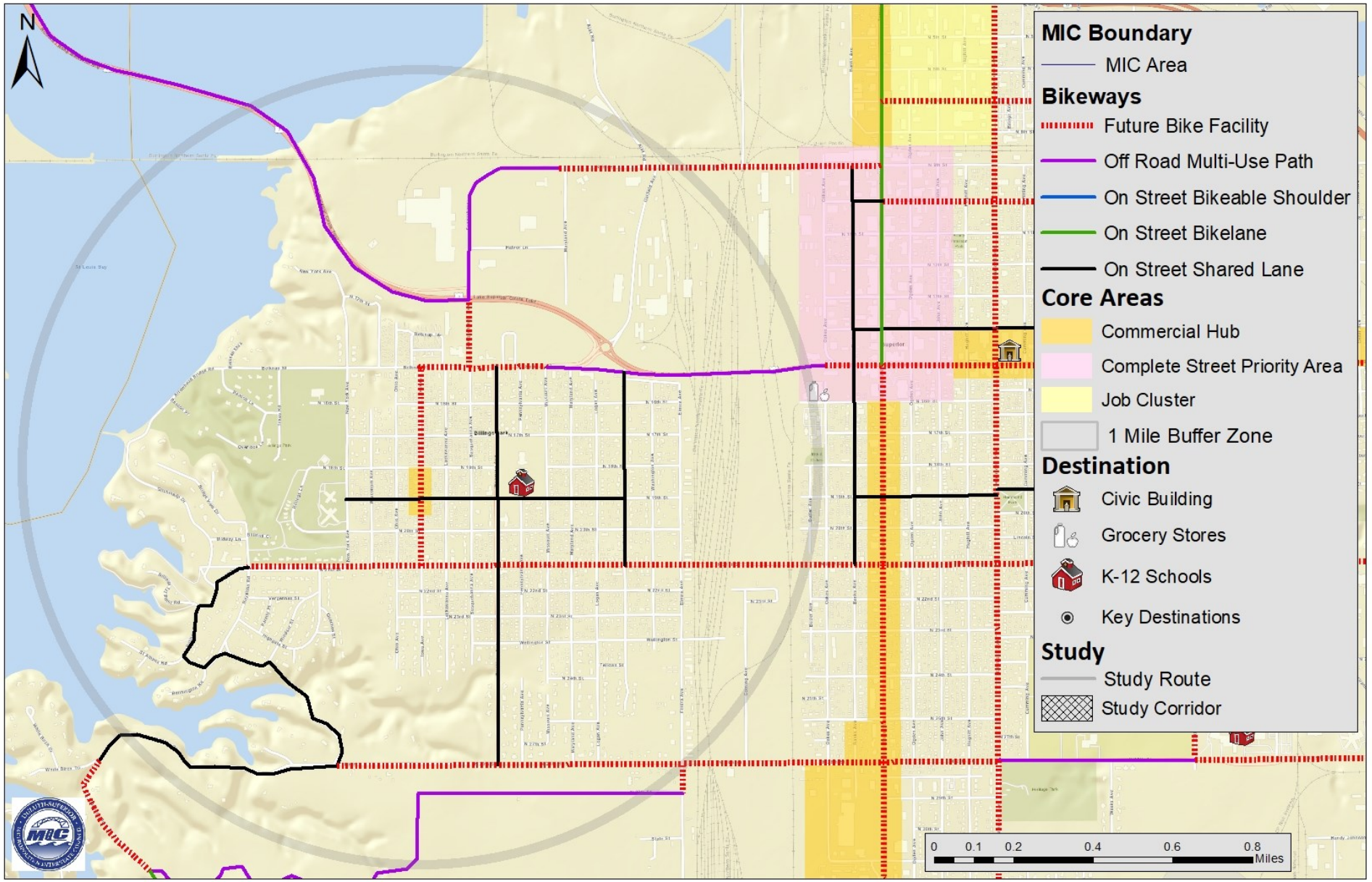
This hub primarily serves the airport area job cluster.

This commercial hub has a cluster of restaurants, banks, retail, and medical offices.

Key Gaps

- Lavaque Rd to Airport Rd

MAP 4.2: Billings Park—Superior, Wisconsin



Top Priorities

1. Connection to Cooper Elementary
2. Wider connection across railroad tracks
3. Bong Bridge connection

One Mile Buffer Population: 4195

Notes:

This hub primarily serves Cooper Elementary School and the surrounding residential area of Billings Park

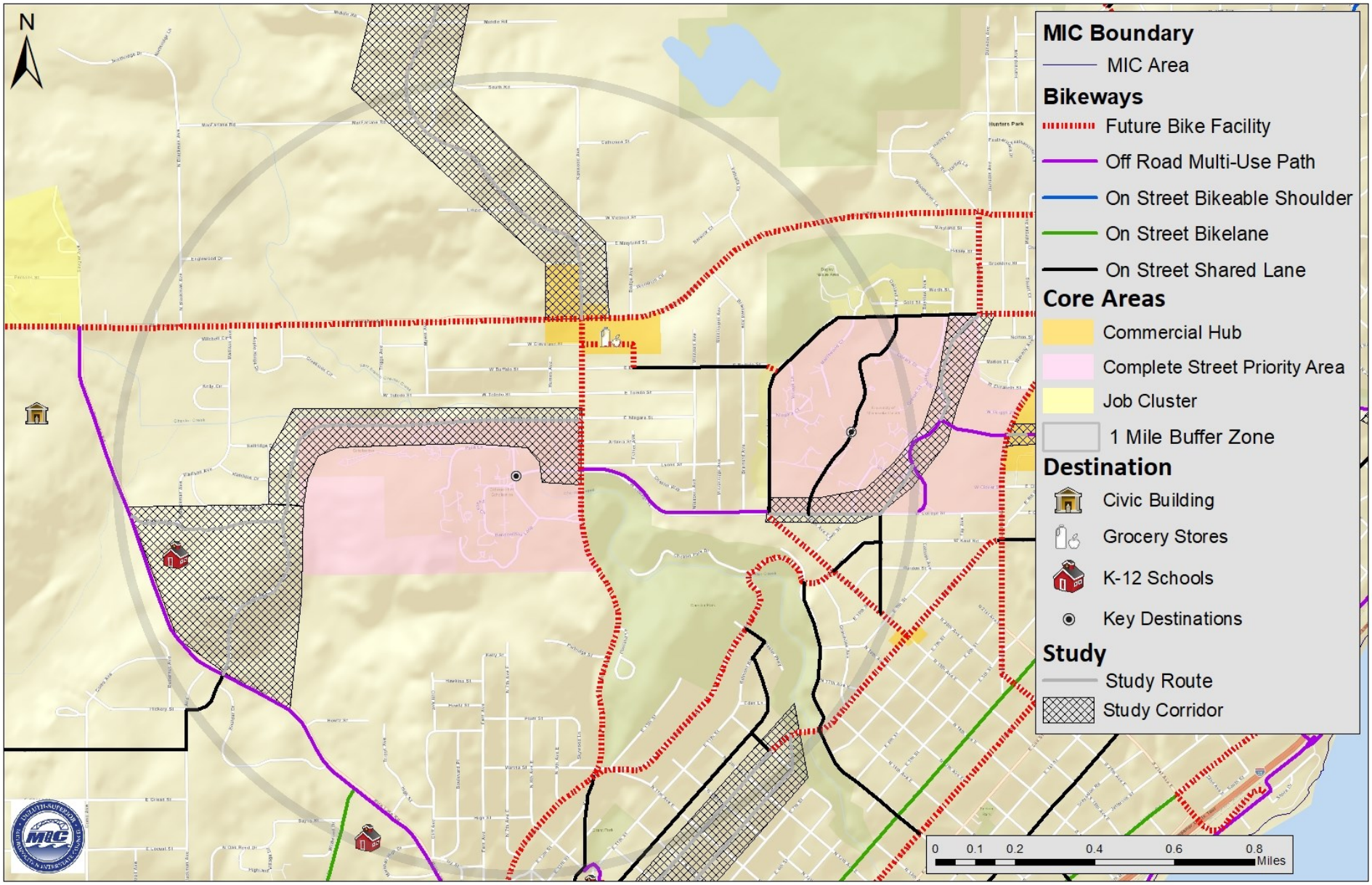
This commercial has a cluster of restaurants and retail.

* Allowing Billings Park residents to get around within their neighborhood.

Key Gaps

- N 21st St
- N 28th St
- Connection HWY 2

MAP 4.3: College of St. Scholastica —Duluth, Minnesota



Top Priorities

1. Extension of trail to center of campus
2. Connection to Duluth Heights/ Boulder Ridge/ Rice Lake Rd
3. Lowell school connection

One Mile Buffer Population: 10524

Notes:

This hub primarily serves the College of St. Scholastica and residents of the Kenwood area.

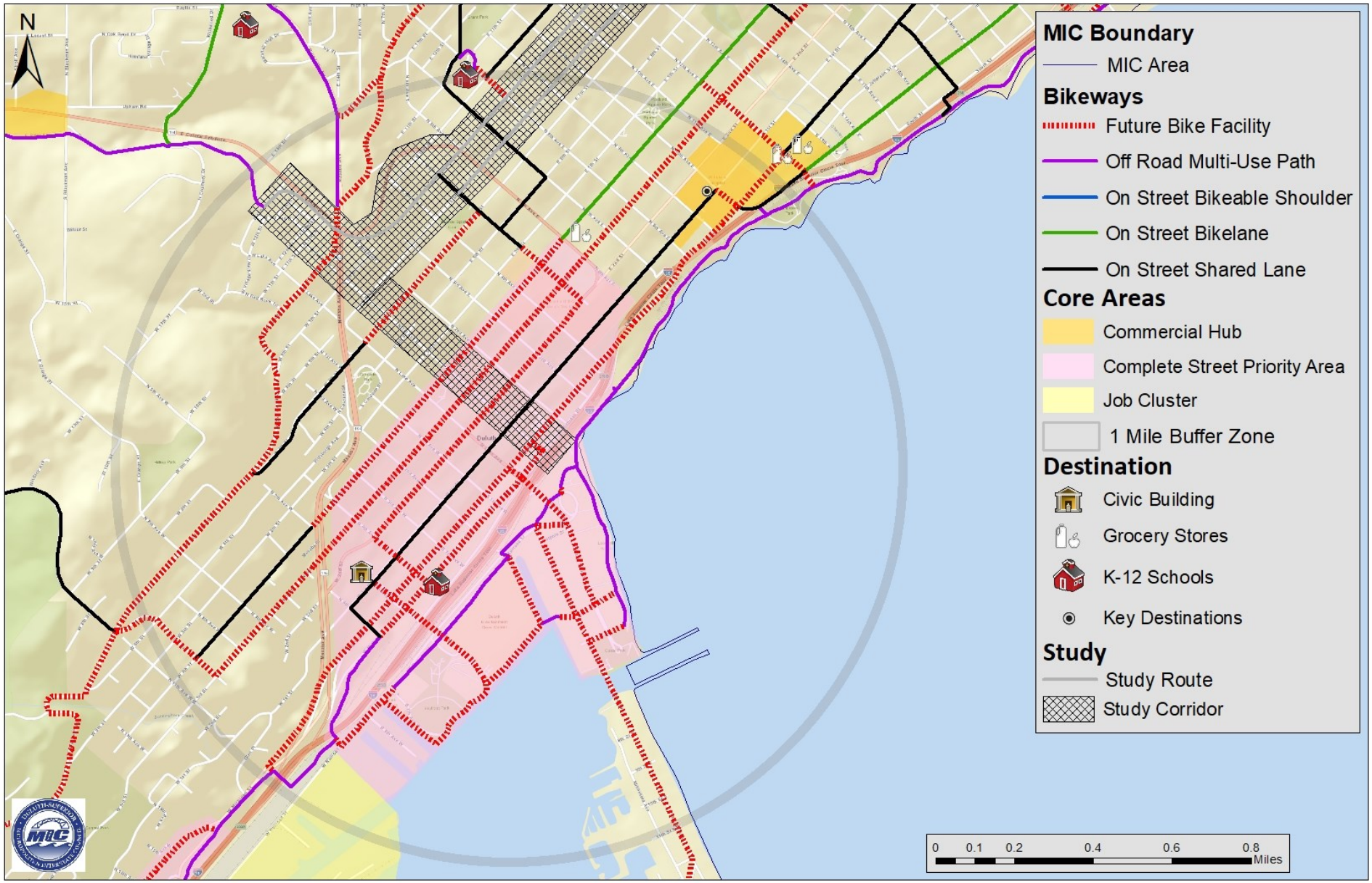
This commercial has a cluster of retail, banks, restaurants, grocery stores, and pharmacy.

Study Corridor

Key Gaps

- Arrowhead Rd
- Kenwood Ave
- Skyline Pkwy

MAP 4.4: Downtown Duluth



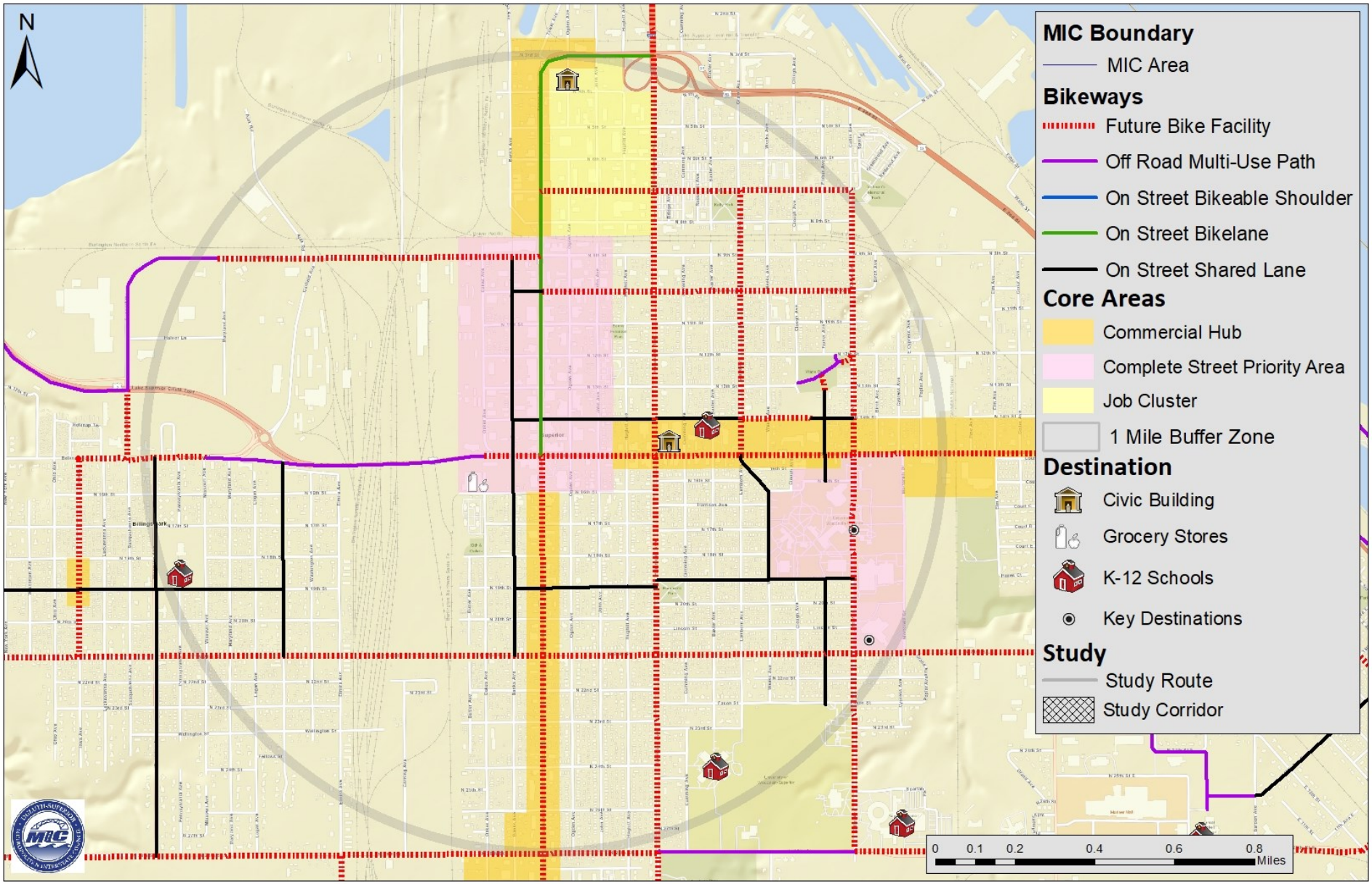
Top Priorities

1. Superior St– connecting the lot downtown connection trail through downtown to the East hillside
2. Lake Ave– Downtown to Canal Park
3. Hill Route– 3rd Ave W (DTC) to 2nd St to 5th St

One Mile Buffer Population: 9817

Key Gaps

MAP 4.5: Downtown Superior



Top Priorities

1. Belknap– East Downtown to UWS corridor
2. Tower Ave– Library to South
3. Blatnik Bridge connection

One Mile Buffer Population: 12260

Notes:

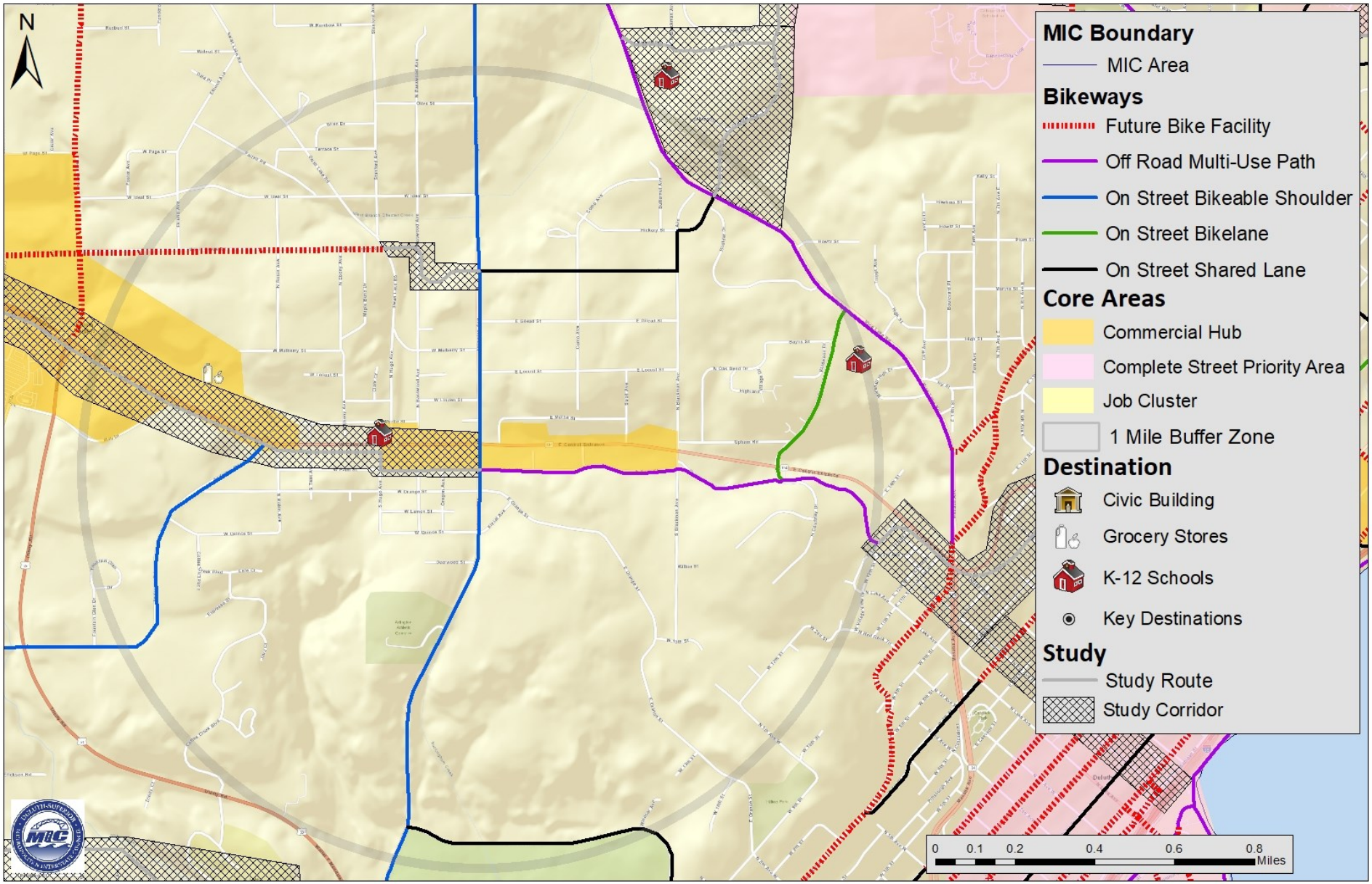
This hub primarily serves North End, Downtown, and Billings Park residents.

This commercial has a cluster of the downtown area, which includes the Belknap corridor and the Tower Ave corridor.

Key Gaps

- Right now there is no connectivity through the city
- Belknap St
- Hammond Ave
- N 21st St

MAP 4.6: Duluth Heights



Top Priorities

1. Central Entrance path extension
2. Duluth Heights neighborhood- Joshua Ave Trail
3. Campus connection trail extension of Duluth Heights

One Mile Buffer Population: 3852

Notes:

This hub primarily serves the Duluth Heights residents.

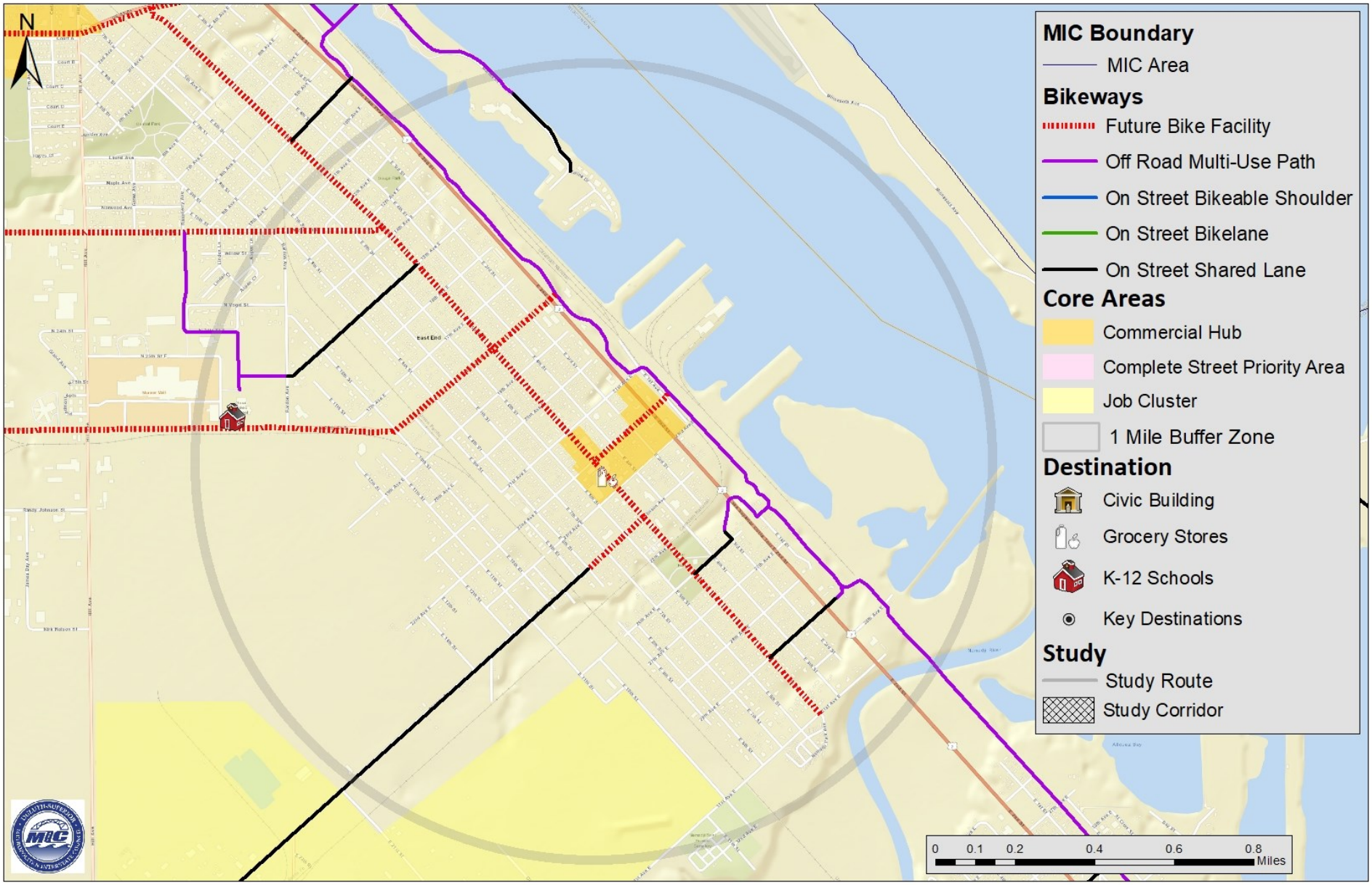
This commercial hub has the Miller Hill Mall and other restaurants , retail stores, and grocery stores.

Study Corridor

Key Gaps

- Maple Grove Rd

MAP 4.7: East End—Superior, Wisconsin



Top Priorities

1. 5th St Bikeway
2. 28th St Bikeway– school friendly
3. Grocery store connection across Hwy 2/53

One Mile Buffer Population: 3782

Notes:

This hub primarily serves the East End residents.

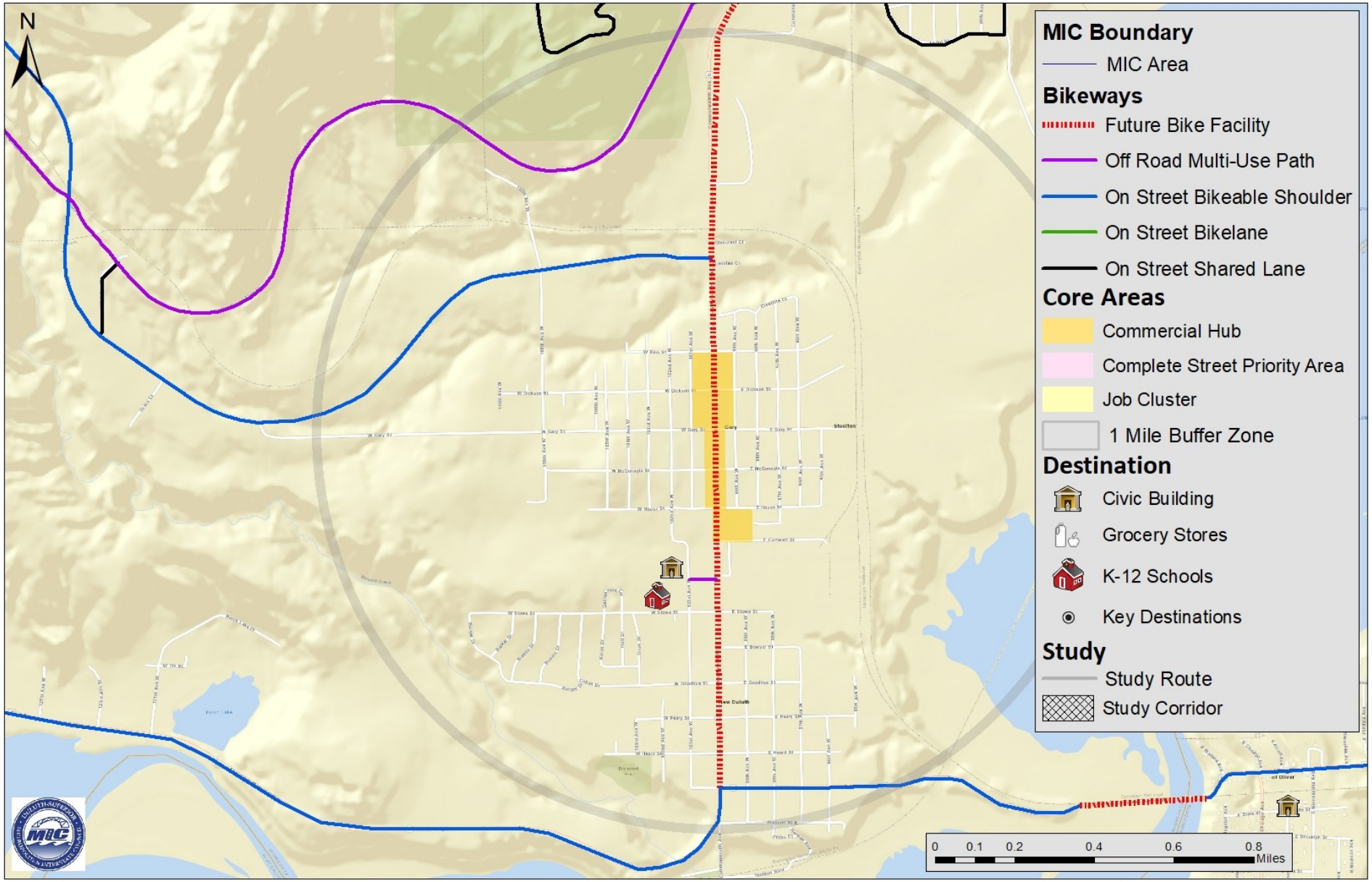
This commercial has a cluster of restaurants, hardware store, grocery stores, and banks.

* Allowing East End residents to get around within their neighborhood.

Key Gaps

- E 5th St
- 22nd Ave E
- 18th Ave E

MAP 4.8: Gary-New Duluth—Duluth, Minnesota



Top Priorities

1. Hwy 23 Bikeway
2. Stone School—bike friendly crossings at Hwy 23
3. Connection to Morgan Park

One Mile Buffer Population: 2661

Notes:

This hub primarily serves the Gary– New Duluth residents.

This commercial has a cluster of restaurants, retail, and grocery stores.

* Allowing the Gary-Duluth residents to get around within their neighborhood.

Key Gaps

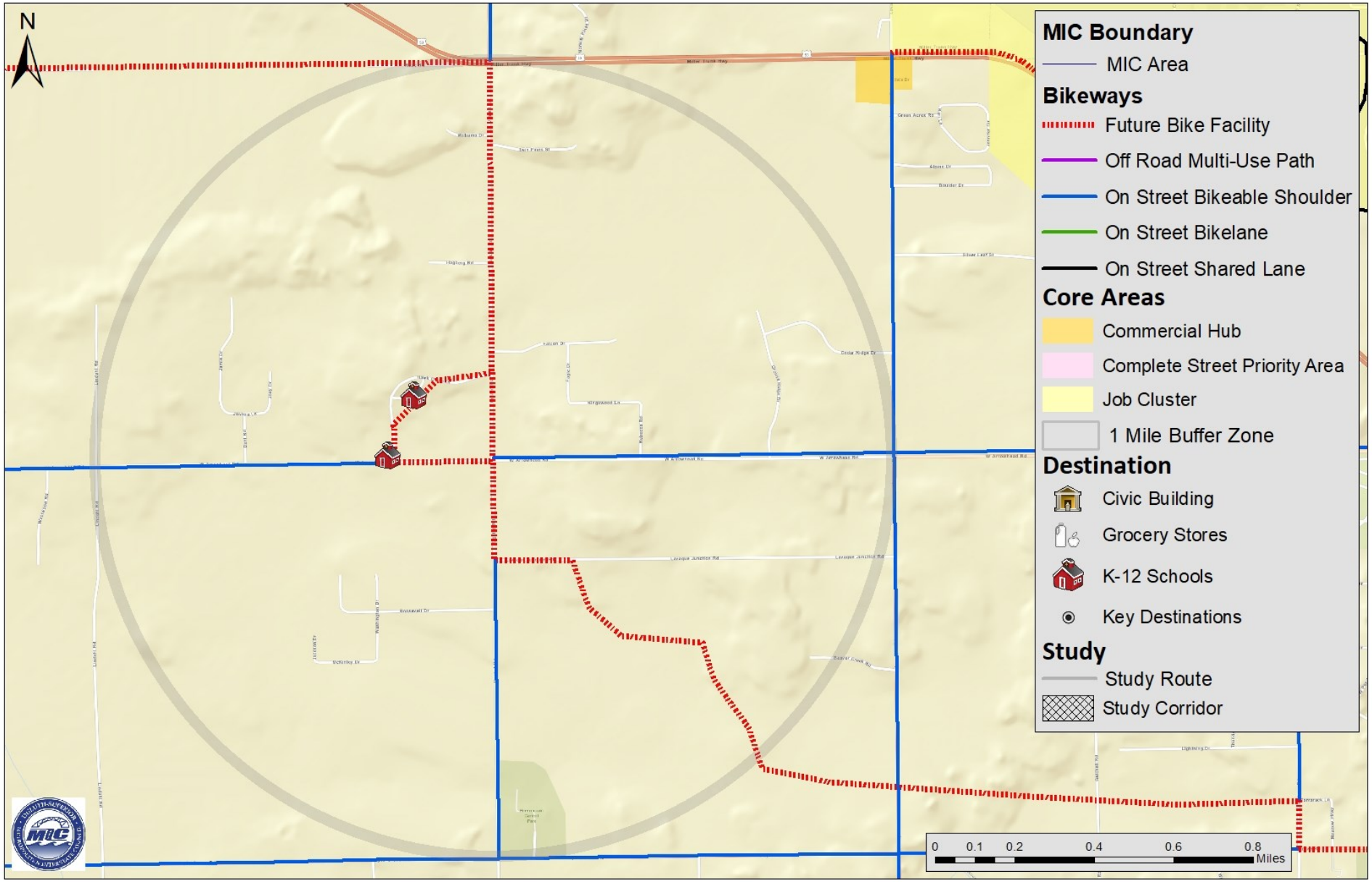
- Commonwealth Ave

Route Attribute	I-35 to Zoo (Routes 1 & 3 both ways)	Zoo to Gary/ NewDuluth (Route 2 both ways)
Avg number of bus trips per day	66 westbound 68 eastbound	28 westbound 30 eastbound
Avg bus headway (minutes)	18 minutes	42 minutes
Avg bus occupancy	48% capacity	28% capacity

Figure X.X | Characteristics of Highway 23 Transit Service

Bus service is more frequent and more heavily utilized east of the transit turnaround at the Lake Superior Zoo.

MAP 4.9: Hermantown Community Center Area



Top Priorities

1. Bike path on school campus
2. Connections to immediately surrounding neighborhoods
3. Arrowhead and Ugstad intersection
4. Hermantown Trail

One Mile Buffer Population: 1080

This hub primarily serves the Hermantown Community

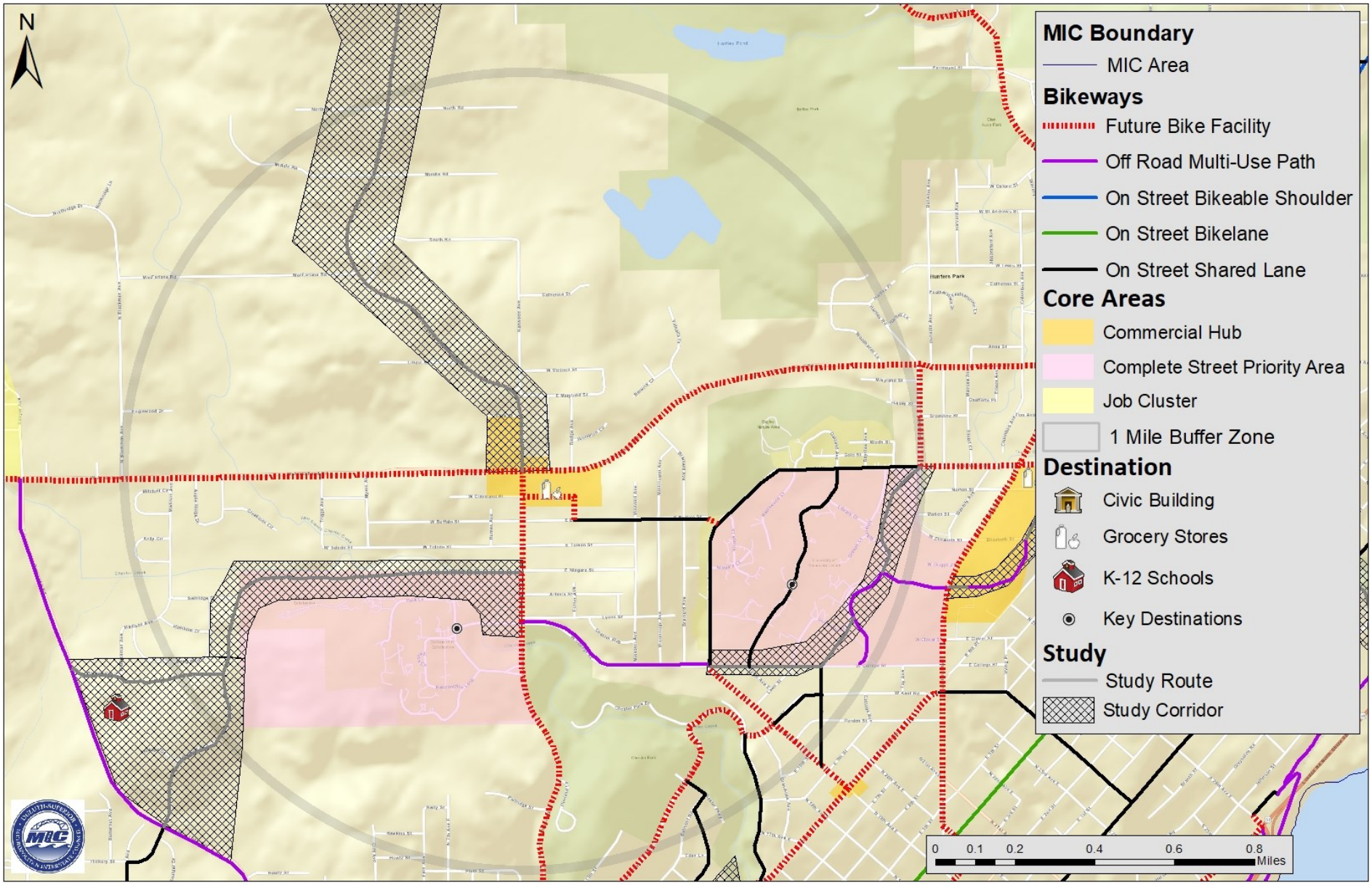
This hub is the central location of the Hermantown School District.

* Allowing the Hermantown district to have connectivity within the city.

Key Gaps

- Ugstad Rd
- Hermantown School District
-

MAP 4.10: Kenwood



Top Priorities

1. Kenwood Ave
2. Kenwood and Arrowhead Rd
3. Kenwood shopping center to UMD

One Mile Buffer Population: 8980

Notes:

This hub primarily serves the residents of the Kenwood area and students of UMD and St. Scholastica.

This commercial has a cluster of retail , banks, restaurants, grocery stores, and pharmacy.

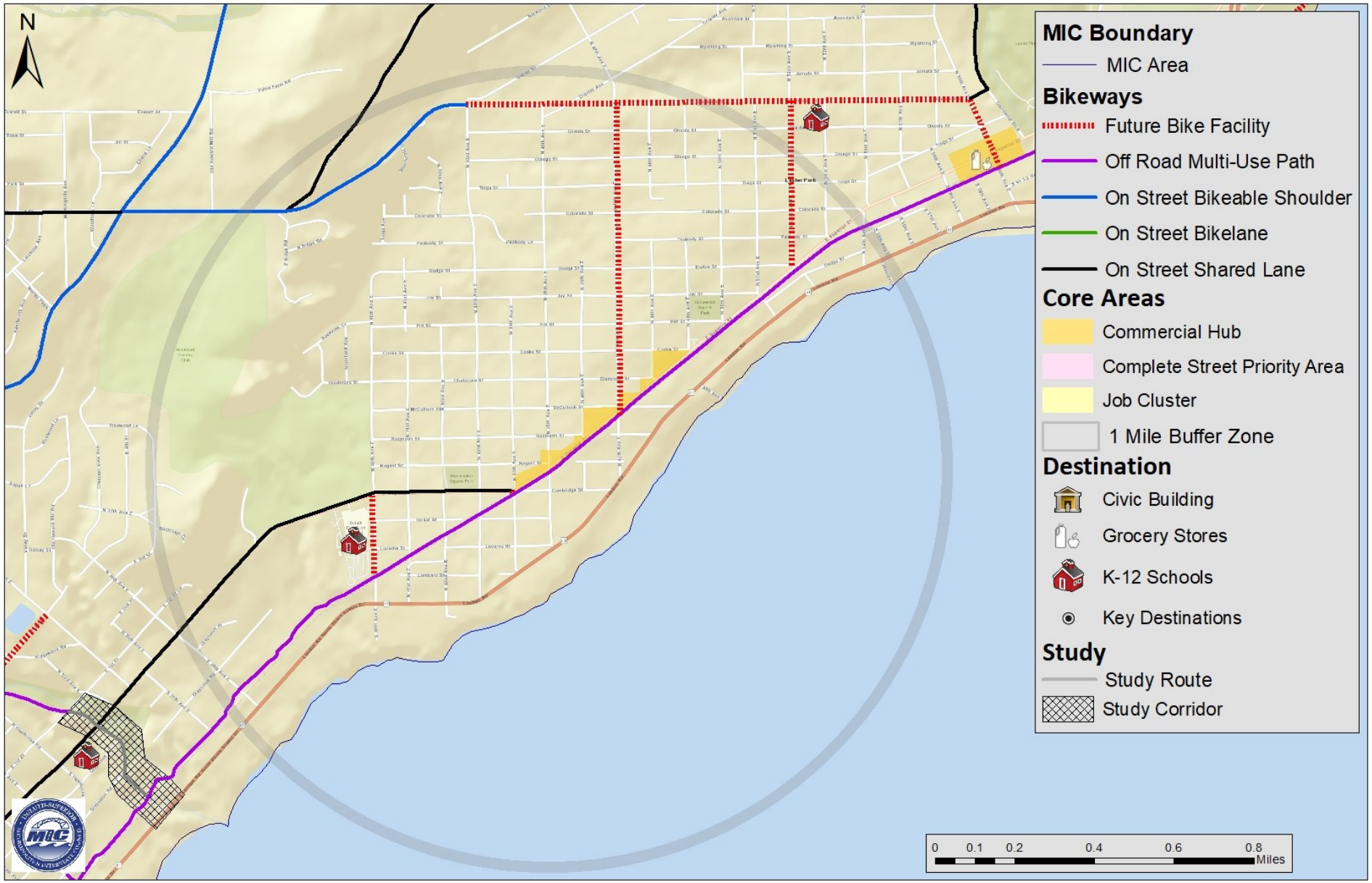
Study Corridor

* Allowing Kenwood residents to get around within their neighborhood.

Key Gaps

- Arrowhead Rd
- Kenwood Ave

MAP 4.11: Lakeside—Duluth, Minnesota



Top Priorities

1. East High School connection– 40th Ave E– Superior St
2. Glenwood– upper to Jean Duluth Rd / Snively Rd
3. Lakewalk connections-curb ramp– connection
4. 47th Ave E bike lanes

One Mile Buffer Population: 6210

Notes:

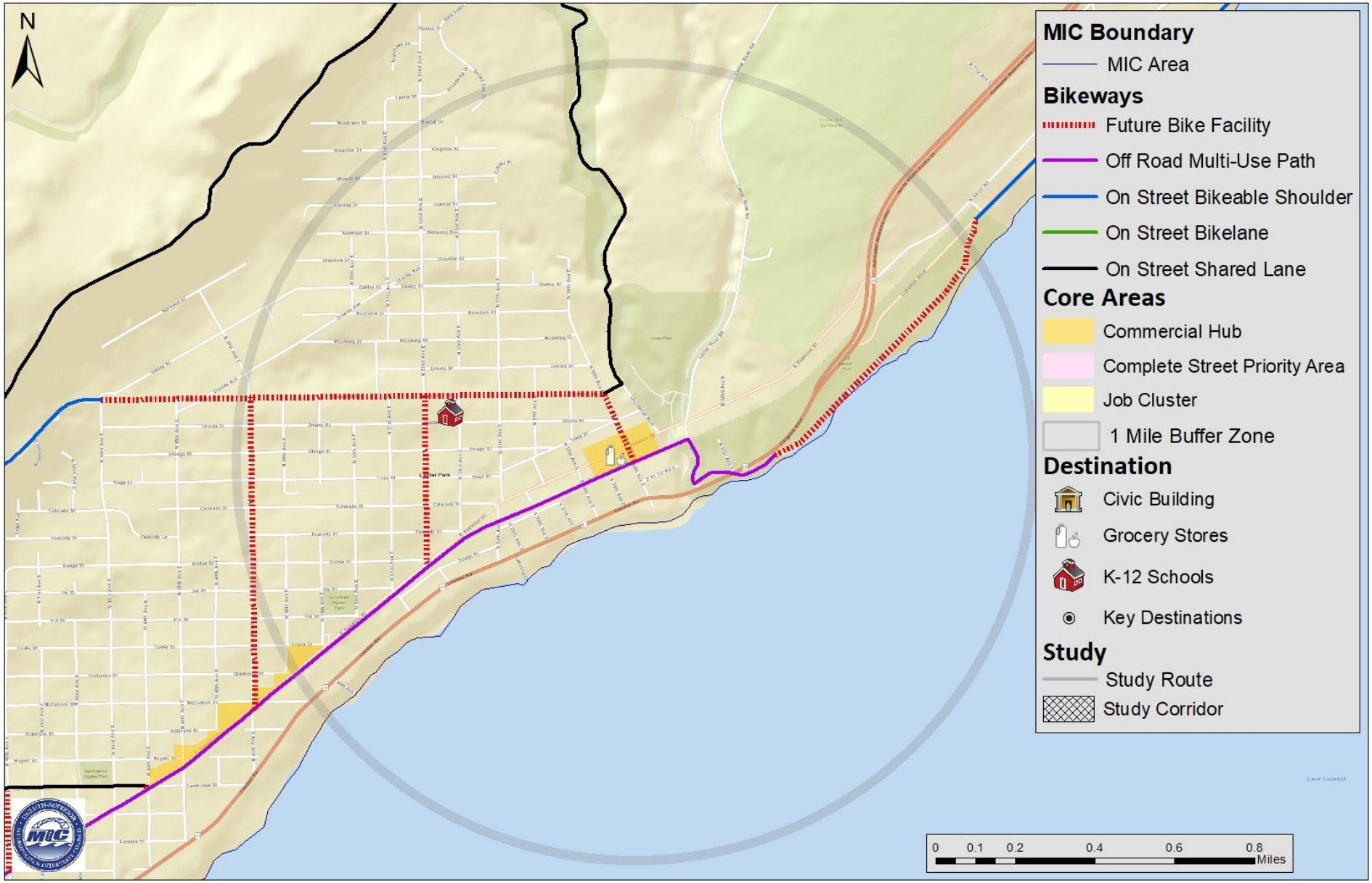
This hub primarily serves the Lakeside residents.

This commercial has a cluster of restaurants, retail, grocery stores, banks, hardware stores, and gyms.

Key Gaps

- Glenwood St
- N 45th Ave E
- N 40th Ave E

MAP 4.12: Lester Park—Duluth, Minnesota



Top Priorities

1. Lakwalk connection– Super One– curb ramp to avenue
2. Lower Glenwood to Lester Park elementary
3. 52nd Ave to Lester Park elementary

One Mile Buffer Population: 4209

Notes:

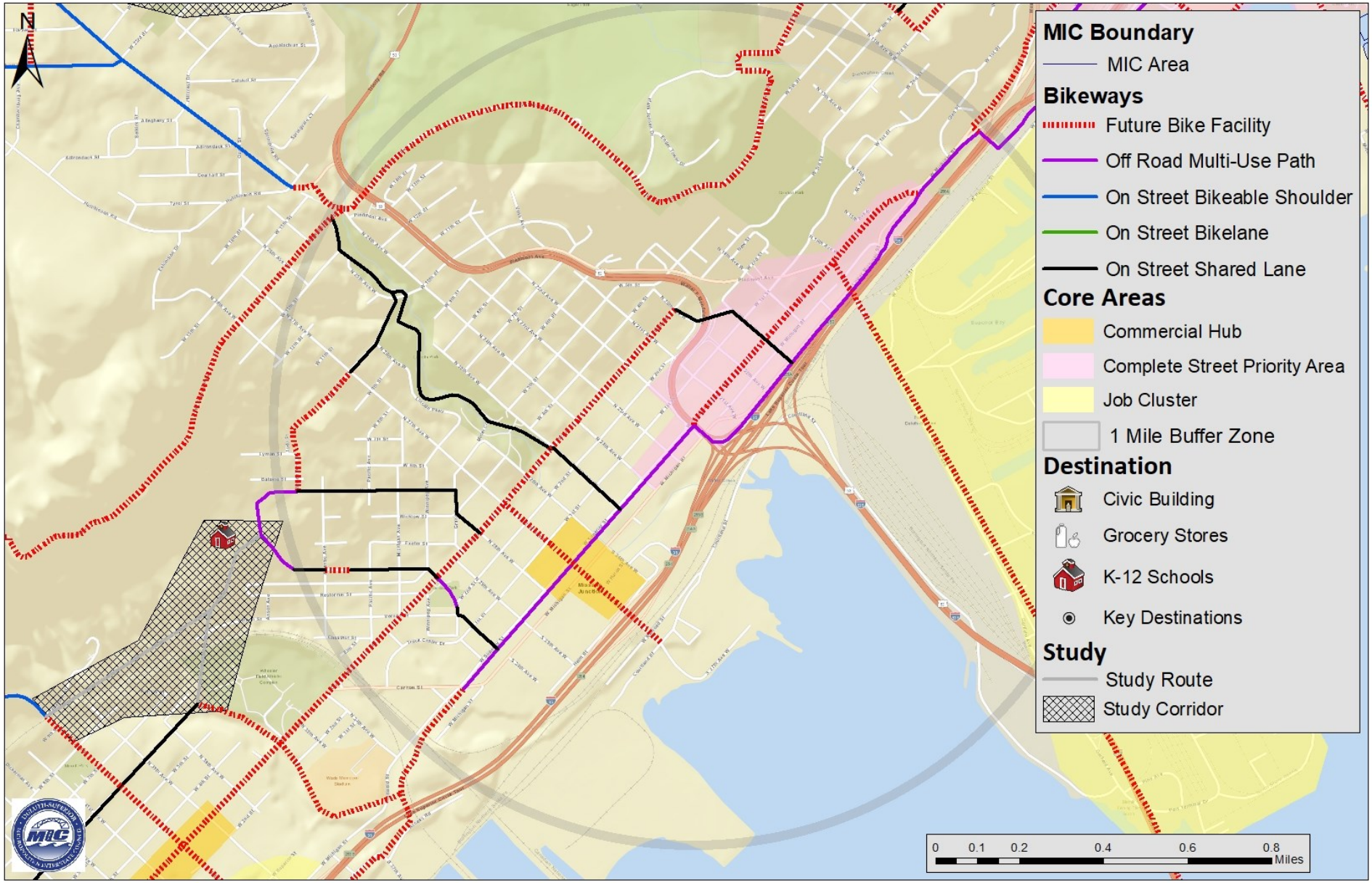
This hub primarily serves the Lester Park residents.

This commercial has a cluster of restaurants, retail, grocery stores , banks, hardware stores, and gyms.

Key Gaps

- N 52nd Ave E
- Glenwood St
- N 60th Ave E

MAP 4.13: Lincoln Park—Duluth, Minnesota



Top Priorities

1. 3rd St Bikeway
2. Lincoln Park Craft District
3. Downtown/ Mesaba Ave connection

One Mile Buffer Population: 6237

Notes:

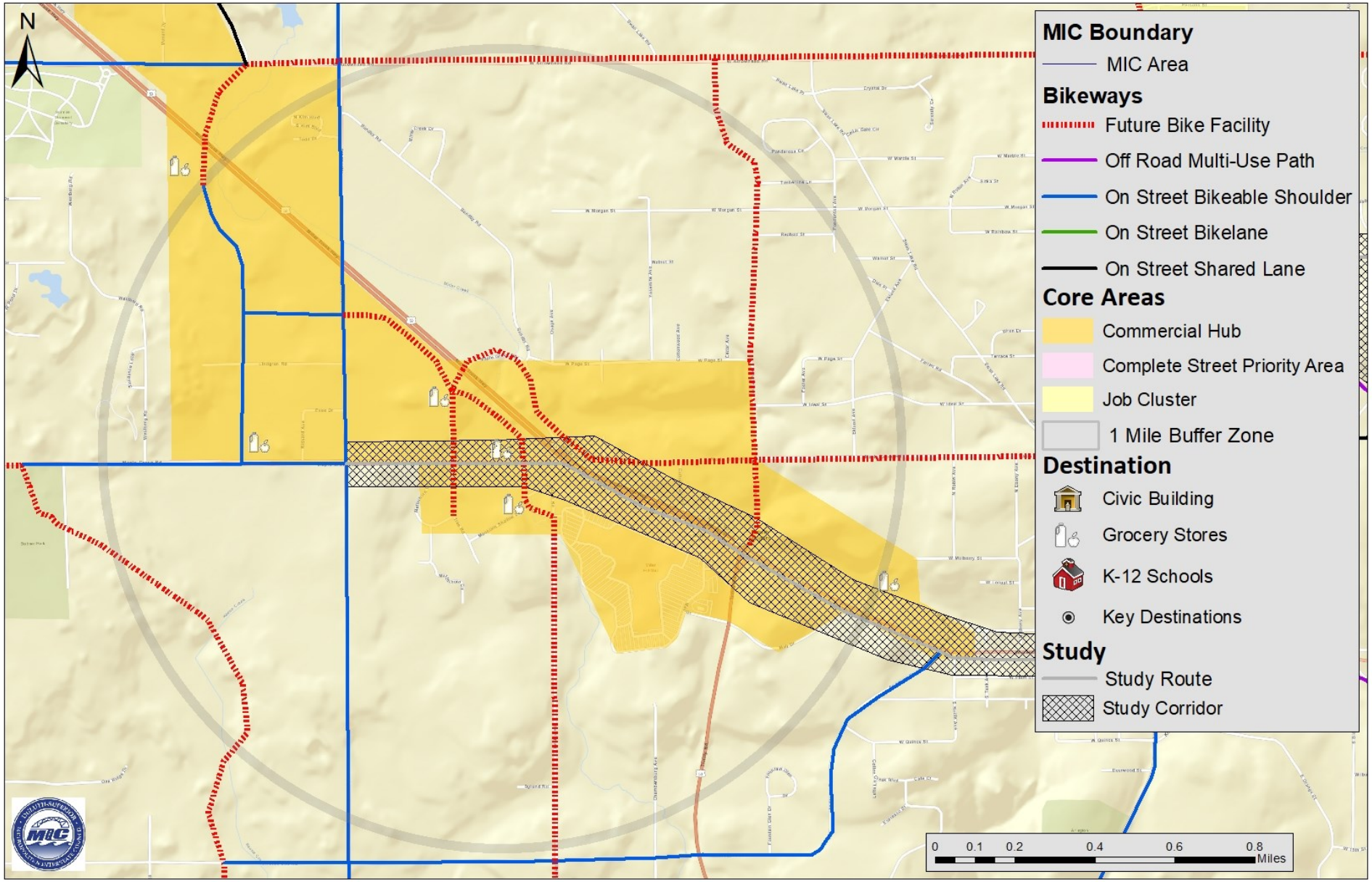
This hub primarily serves the Lincoln Park residents and connection to a growing hub.

This commercial has a cluster of restaurants, retail, grocery stores, and banks.

Key Gaps

- W 3rd St
- N 27th Ave W
- W Superior St

MAP 4.14: Miller Hill Commercial Center—Duluth, Minnesota



Top Priorities

1. Central Entrance
2. Hwy 53/ Miller Trunk Hwy crossing
3. Maple Grove

One Mile Buffer Population: 2011

Notes:

This hub primarily serves the Duluth Heights residents, urban dense, and workers of the Miller Hill Mall.

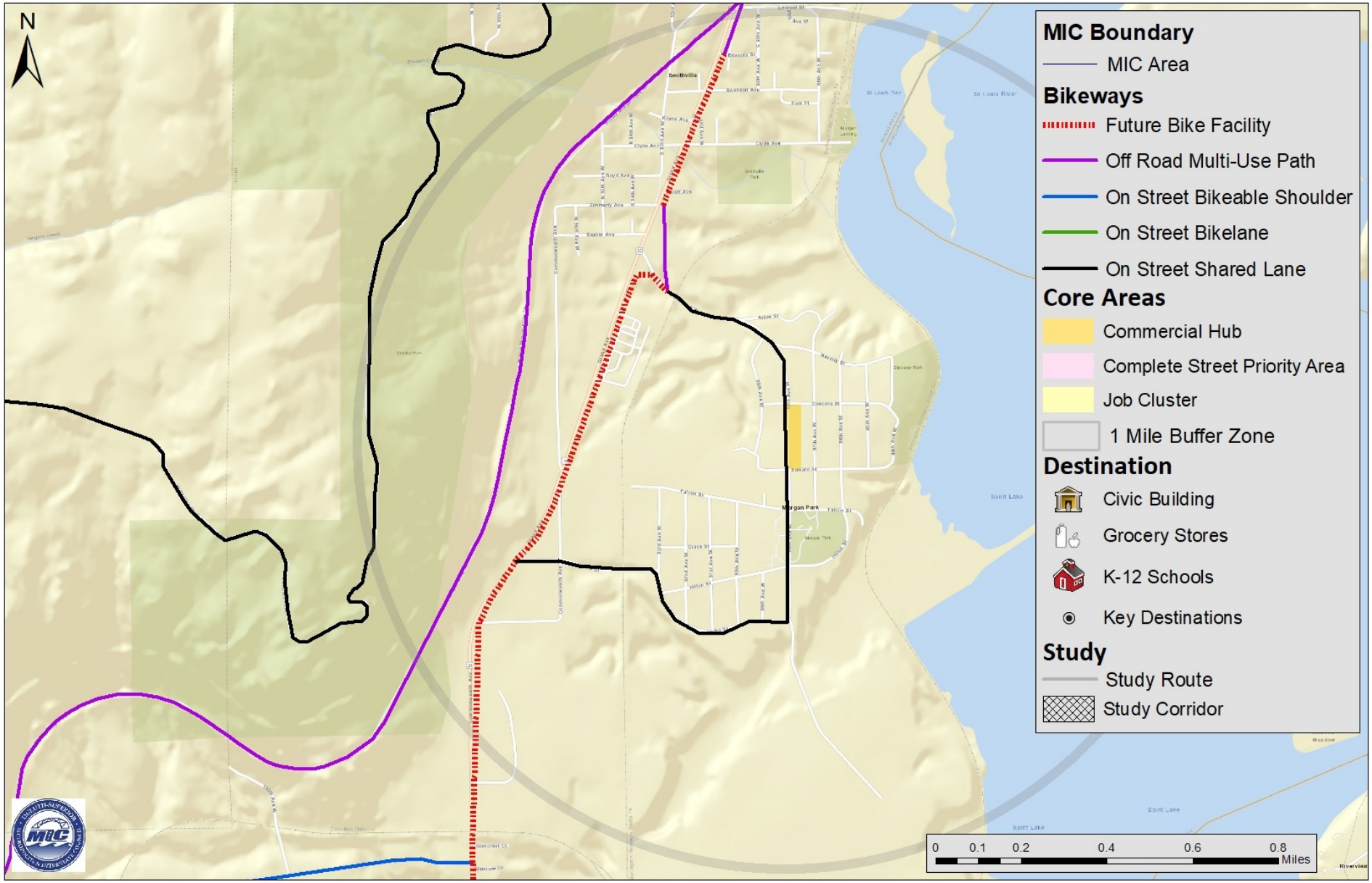
This commercial hub has the Miller Hill Mall and other restaurants, retail stores, and grocery stores.

Study Corridor

Key Gaps

- Mall Dr
- Burning Tree Rd
- Maple Grove Rd

MAP 4.15: Morgan Park—Duluth, Minnesota



Top Priorities

1. Hwy 23 to the North
2. Hwy 23 to the south– business district and school
3. Main route through Morgan Park

One Mile Buffer Population: 2281

Notes:

This hub primarily serves the Morgan Park residents.

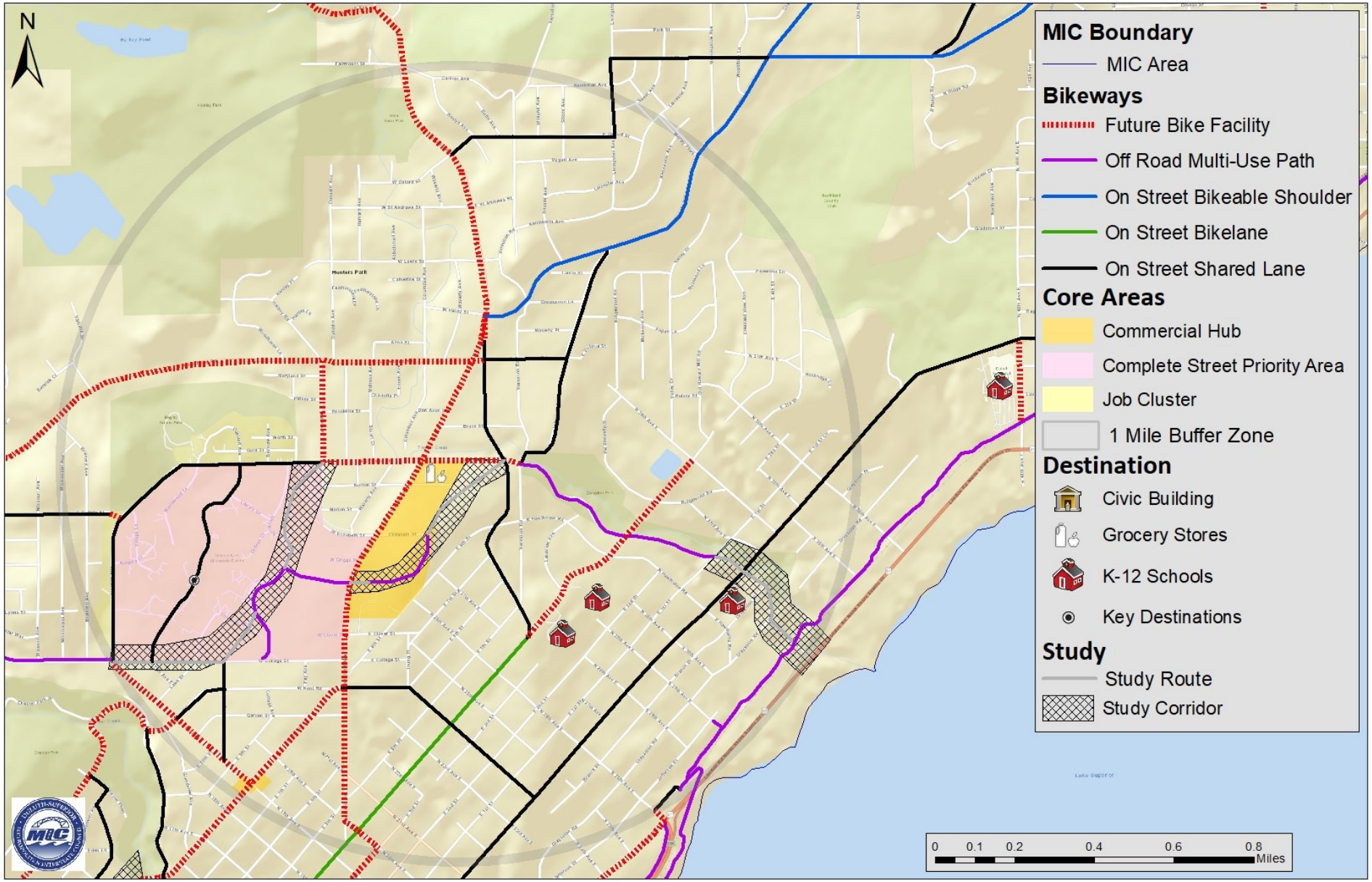
Provides the commercial cluster of Morgan Park.

* Allowing Morgan Park residents to get around within their neighborhood.

Key Gaps

- Hwy 23

MAP 4.16: Mount Royal—Duluth, Minnesota



Top Priorities

1. St Marie St
2. Woodland Ave
3. Bluestone connection to Mount Royal
4. 4th St bike lane extension

One Mile Buffer Population: 12091

Notes:

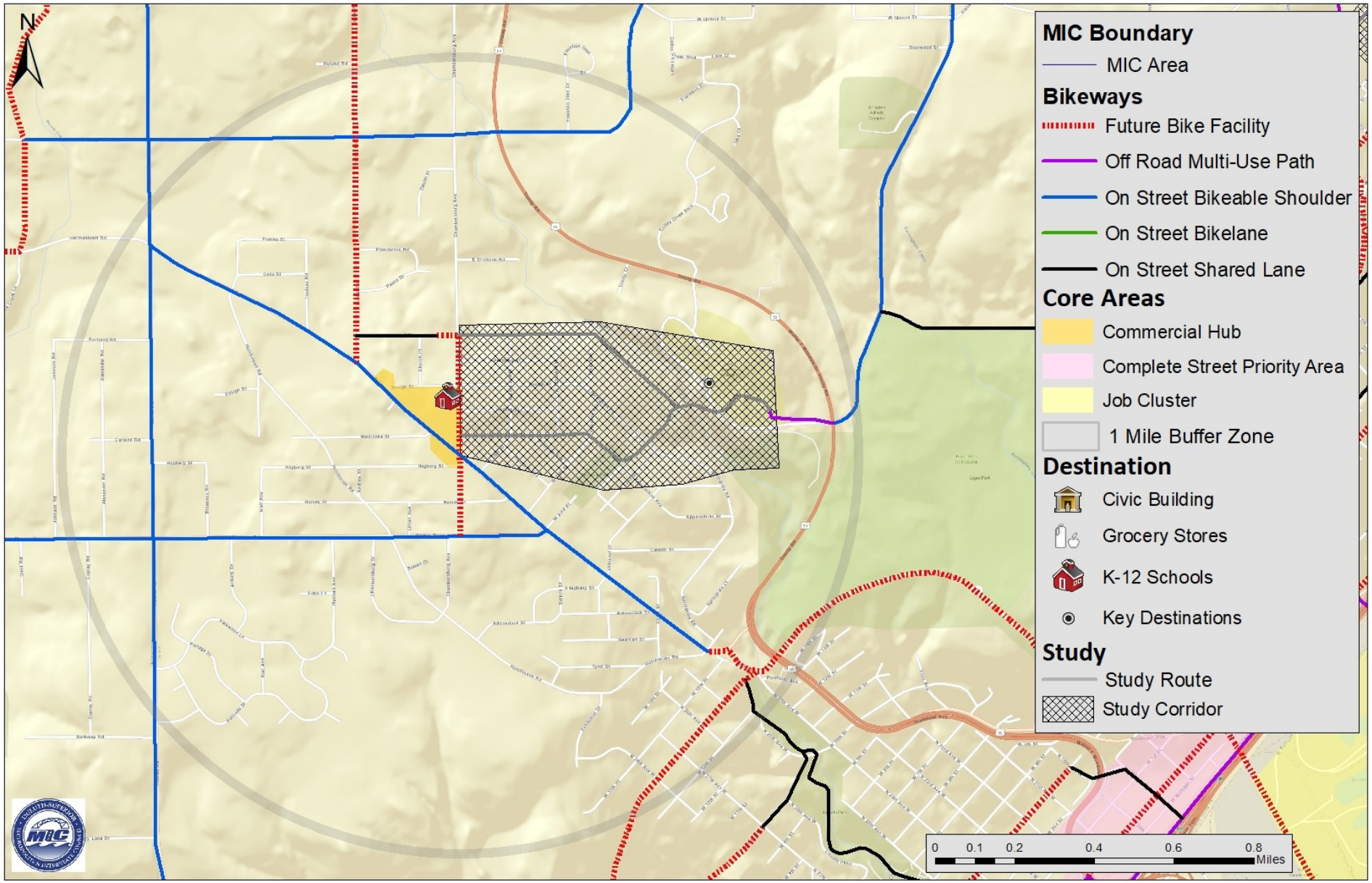
This hub primarily serves UMD students, Chester Park residents and three elementary schools.

This commercial hub has the cluster of good and services that the Woodland corridor offers.

Study Corridor

Key Gaps

MAP 4.17: Piedmont—Duluth, Minnesota



Top Priorities

1. Chambersburg Ave
2. Lake Superior College connection
3. Piedmont Ave

One Mile Buffer Population: 4644

Notes:

This hub primarily serves the Piedmont residents.

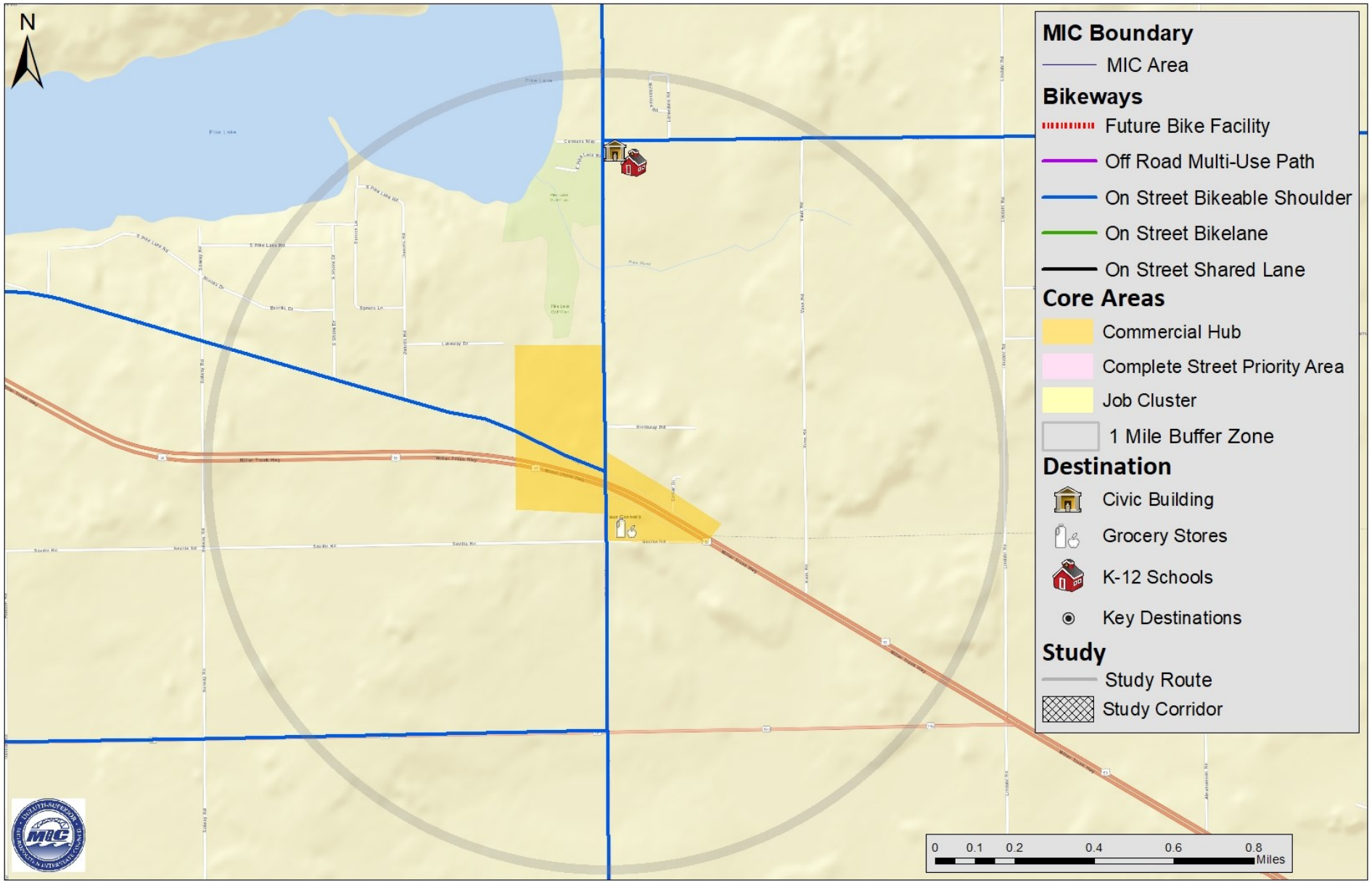
This commercial hub has a cluster of restaurants, retail, and medical offices.

Study Corridor

* Allowing Piedmont residents to get around within their neighborhood.

Key Gaps

MAP 4.18: Pike Lake



Top Priorities

1. Hwy 53 intersection at Midway Rd
2. Midway Rd to Pike Lake Schools
3. Old Miller Trunk Hwy
4. Midway and Martin Rd intersection

One Mile Buffer Population: 891

Notes:

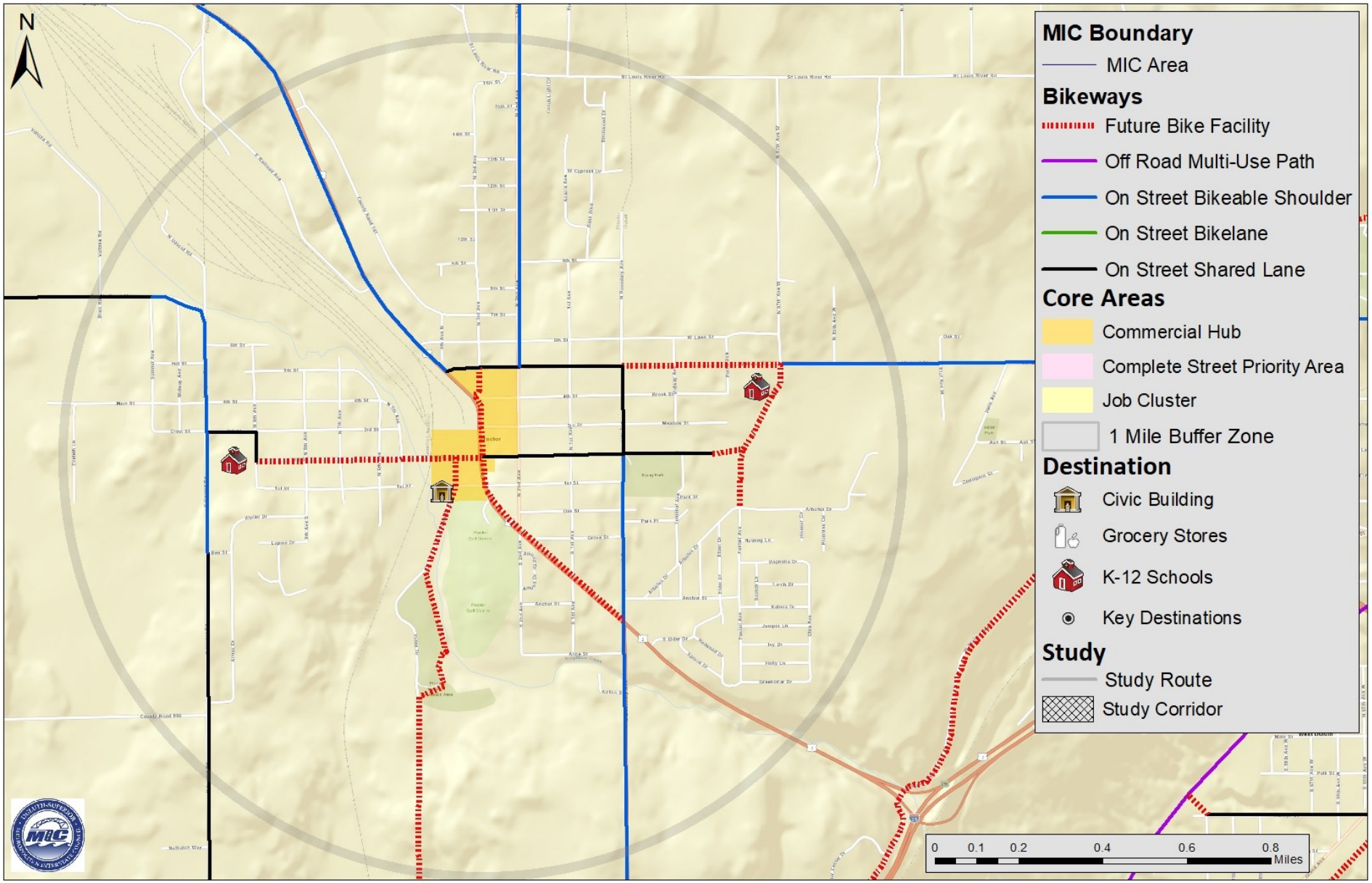
This hub primarily serves the Pike Lake residents.

This commercial hub has cluster of restaurants, banks, retail grocery stores, and medical offices.

* Allowing Pike Lake residents to get around within their neighborhood.

Key Gaps

MAP 4.19: Proctor



Top Priorities

1. 2nd St to high school and middle school
2. Connection to Bay View elementary
3. Hwy 2– downtown Proctor

One Mile Buffer Population: 4079

Notes:

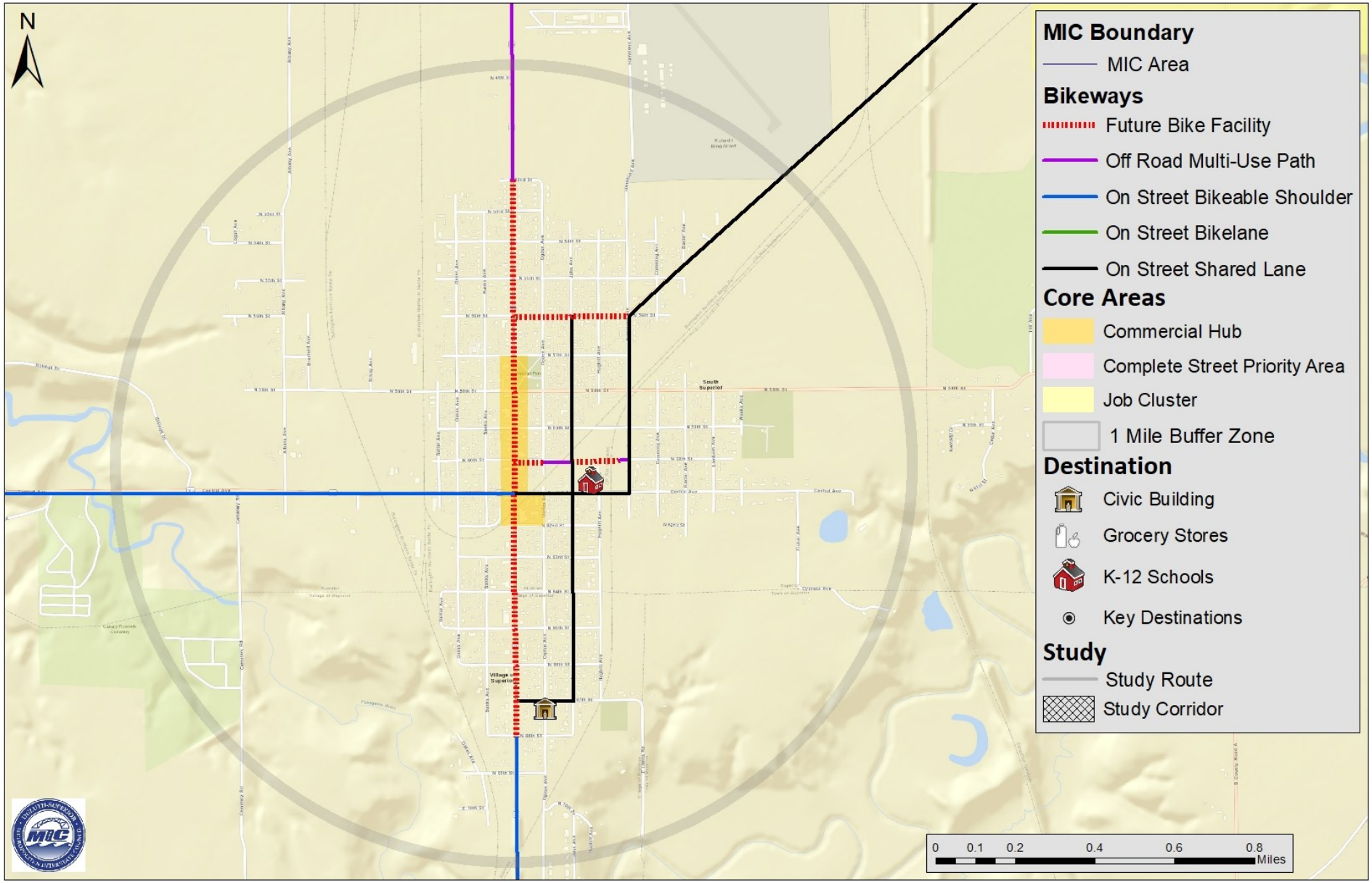
This hub primarily serves the city of Proctor residents.

This commercial hub has cluster of restaurants, banks, retail, and hardware stores.

* Allowing Proctor residents to get around within their neighborhood.

Key Gaps

MAP 4.20: South End Superior



Top Priorities

1. Tower Ave crossing , particularly at 60th St
2. Tower Ave– South end commercial district
3. Connection to the north on Tower Ave

One Mile Buffer Population: 2447

Notes:

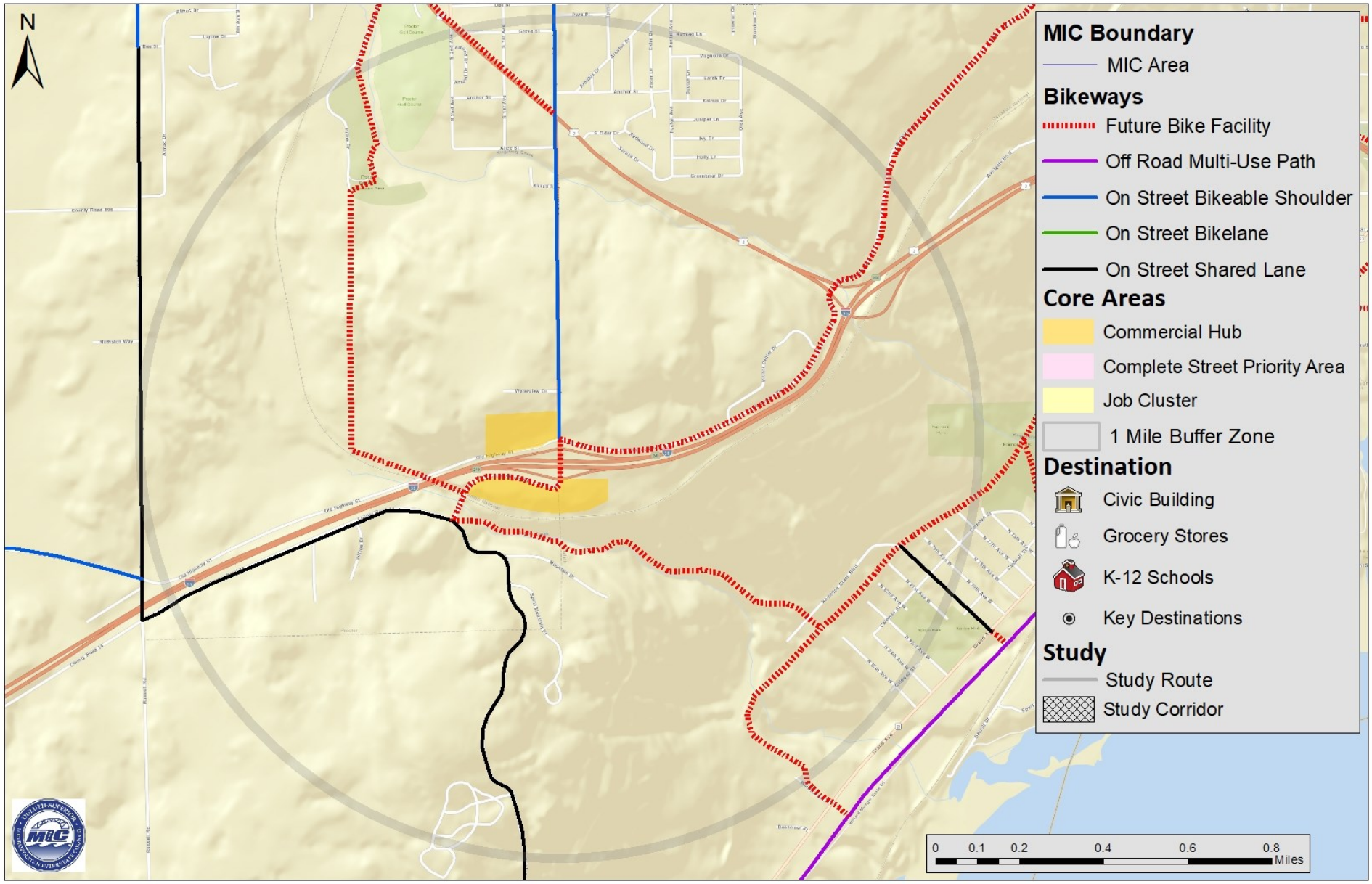
This hub primarily serves the South End Superior residents and as a connection to Downtown Superior.

This commercial hub has cluster of restaurants, retail , and hair salons.

* Allowing South End residents to get around within their neighborhood.

Key Gaps

MAP 4.21: Spirit Mountain



Top Priorities

1. Boundary Ave/ I-35 intersection
2. Boundary Ave
3. Proctor Trail connection to Munger Trail

One Mile Buffer Population: 1755

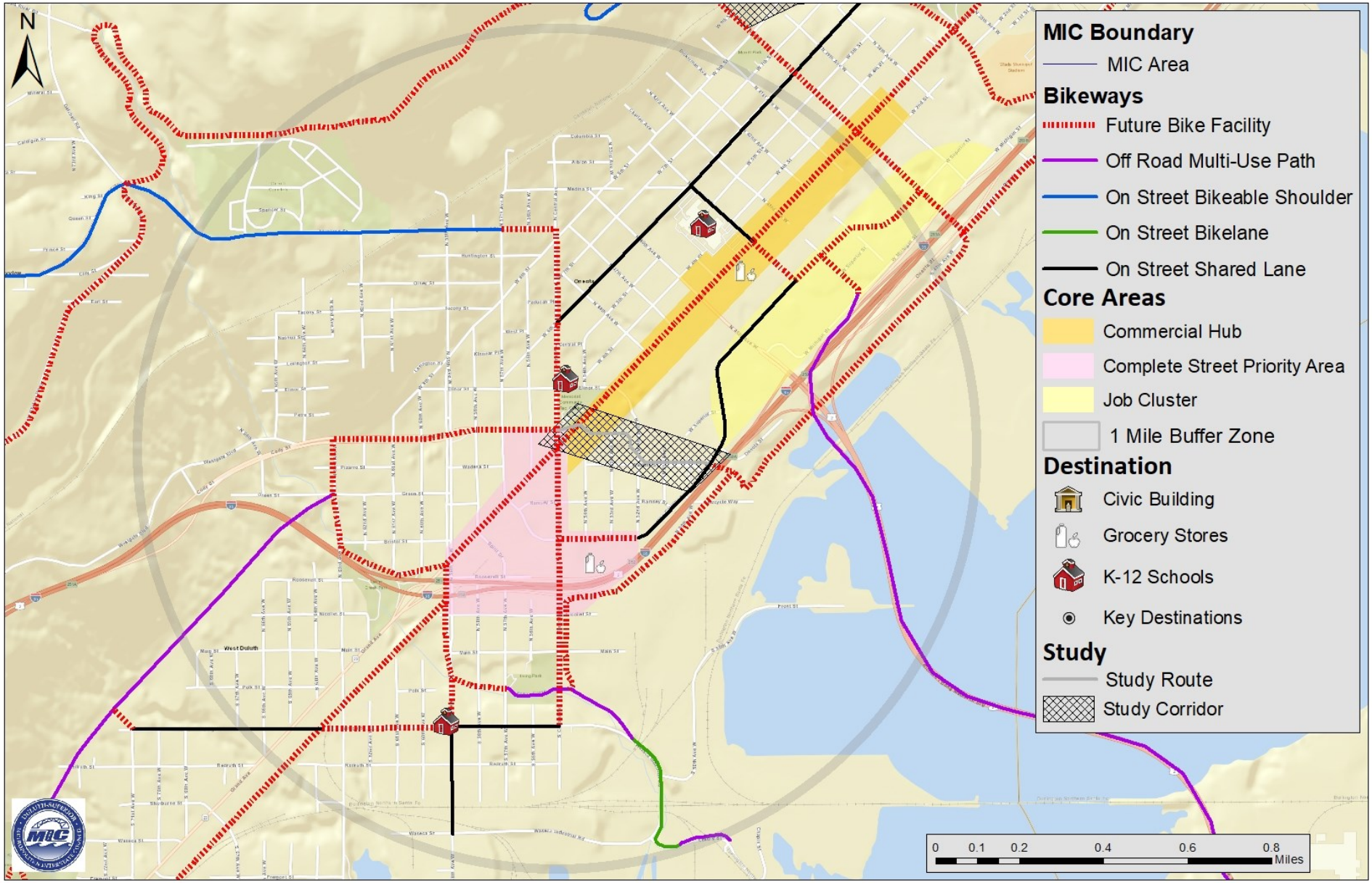
Notes:

This hub primarily serves the Proctor and Bayview residents.

This commercial has a cluster of restaurants, lodging, and recreational activities.

Key Gaps

MAP 4.22: Spirit Valley (West Duluth)



Top Priorities

1. Central Ave
2. Grand Ave
3. Bong Bridge to Grand Ace to Cross City Trail

One Mile Buffer Population: 7276

Notes:

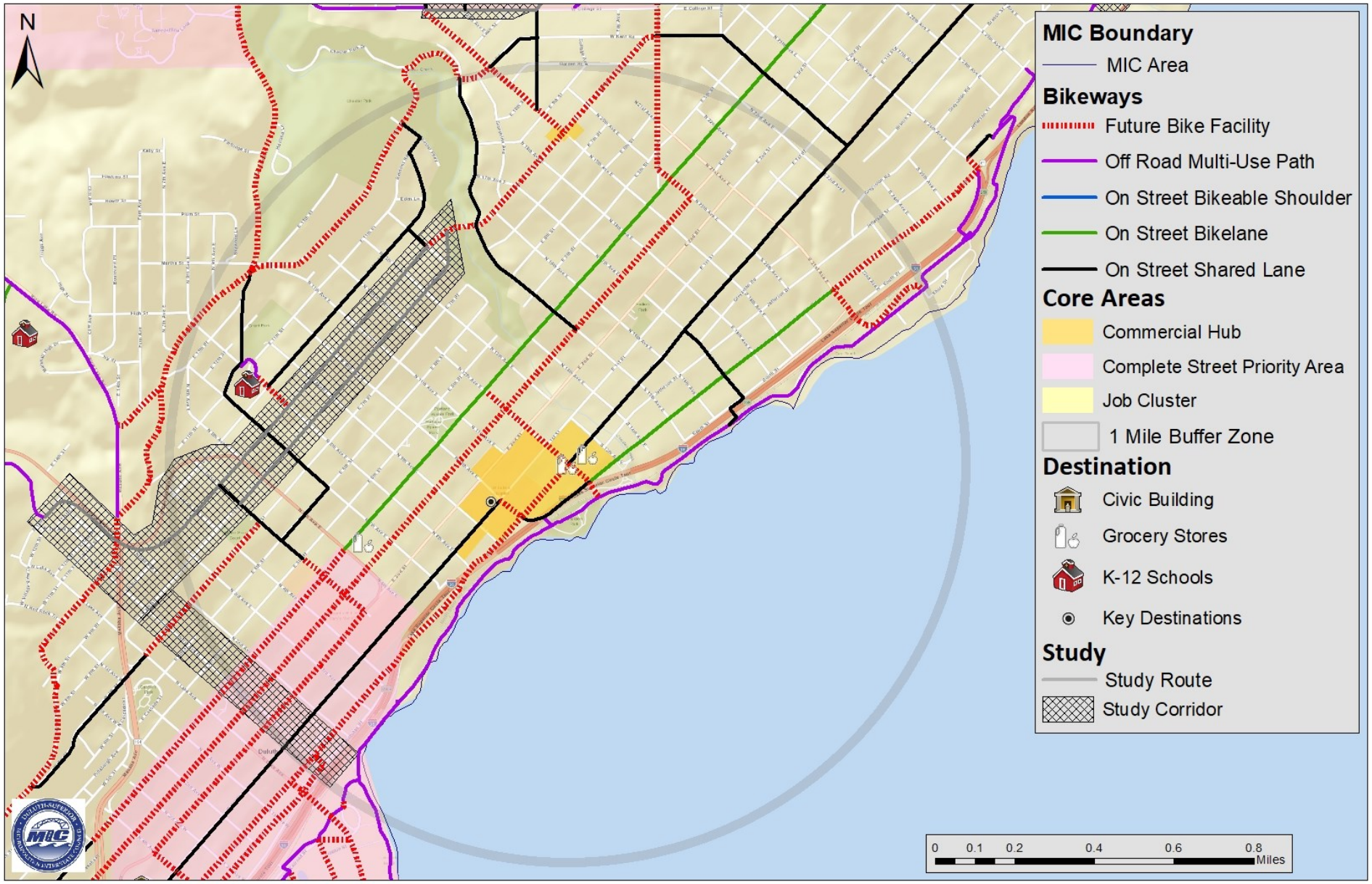
This hub primarily serves the Spirit Valley residents, multiple elementary schools, and a growing commercial hub.

This commercial has a cluster of restaurants, retail, grocery stores, gyms, and banks.

Study Corridor

Key Gaps

MAP 4.23: East Hillside—Duluth, Minnesota



Top Priorities

1. Superior Street
2. 12th Ave East
3. London Road

One Mile Buffer Population: 15541

Notes:

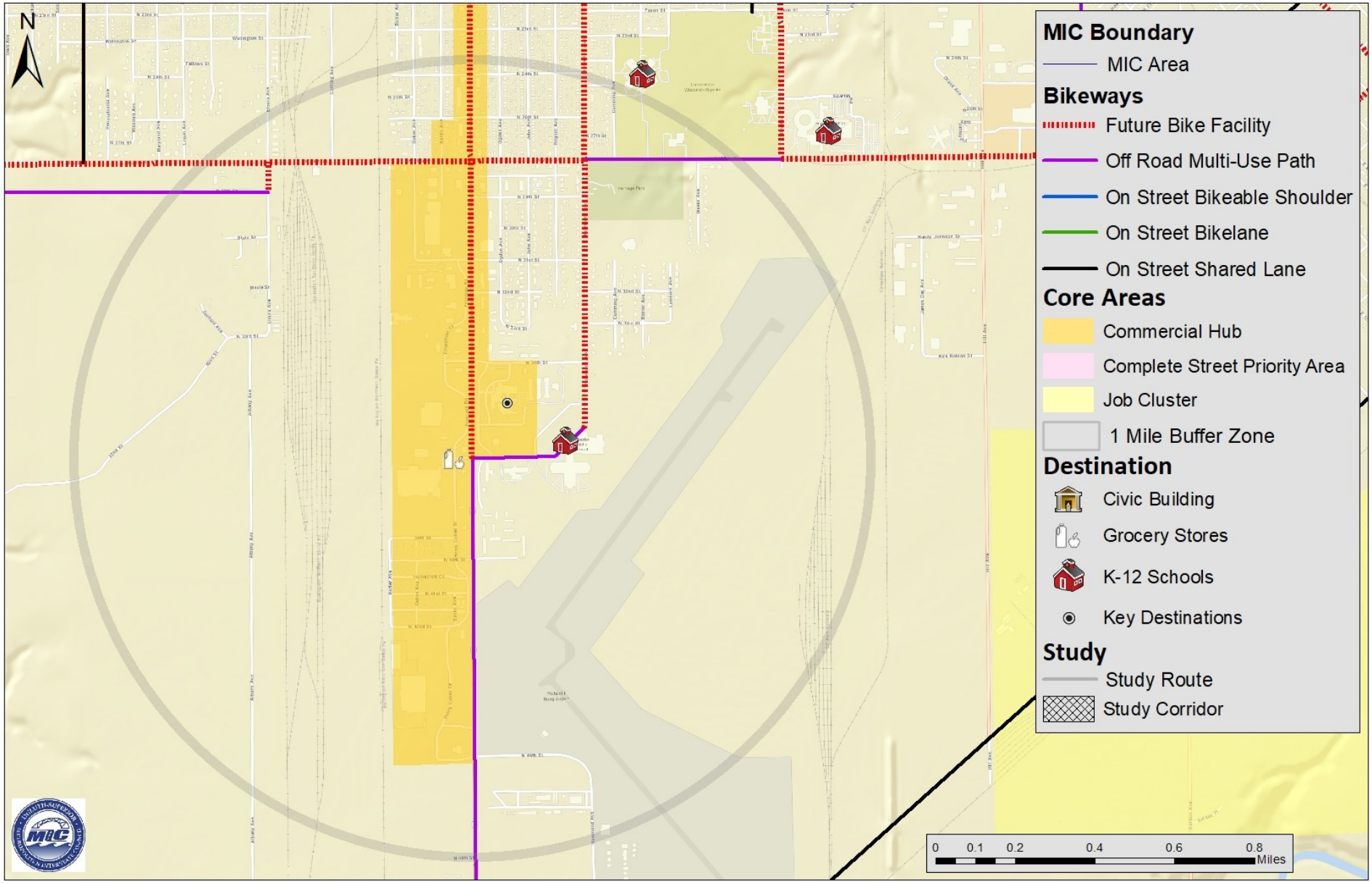
This hub primarily serves the East Hillside residents and as a connection to Downtown Duluth.

This commercial has a cluster of restaurants, retail, grocery stores, medical offices, and banks.

Study Corridor

Key Gaps

MAP 4.24: Tower Avenue Commercial Area—Superior, Wisconsin



Top Priorities

1. Tower Ave
2. 28th Street
3. Hammond Ave

One Mile Buffer Population: 2591

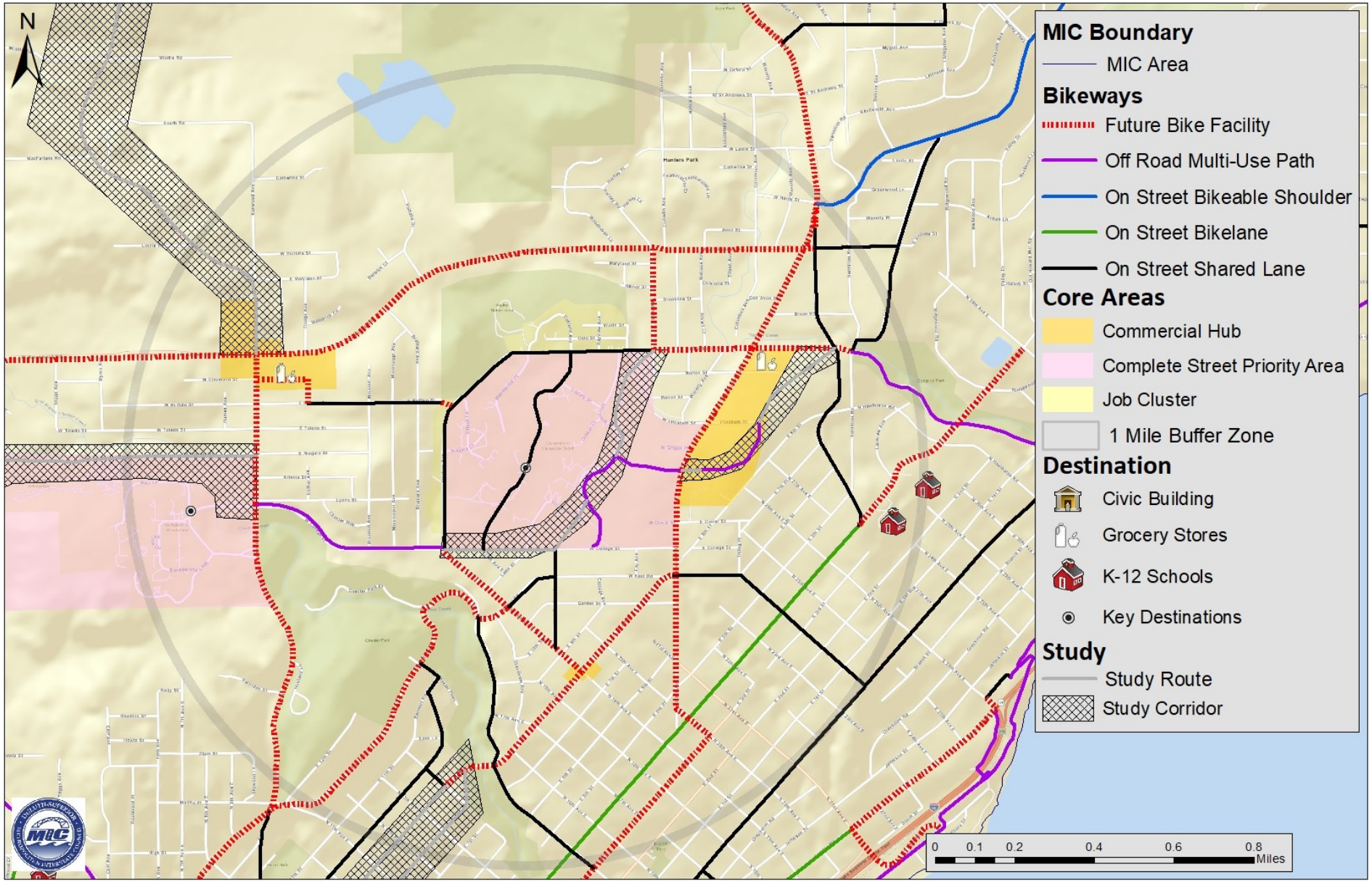
Notes:

This hub primarily serves the Downtown and South End residents, and serves as the main commercial hub of Superior.

This commercial has a cluster of restaurants, retail, and grocery stores, medical offices, and banks.

Key Gaps

MAP 4.25: UMD


N
MIC Boundary
MIC Area
Bikeways
Future Bike Facility
Off Road Multi-Use Path
On Street Bikeable Shoulder
On Street Bikelane
On Street Shared Lane
Core Areas
Commercial Hub
Complete Street Priority Area
Job Cluster
1 Mile Buffer Zone
Destination
Civic Building
Grocery Stores
K-12 Schools
Key Destinations
Study
Study Route
Study Corridor
0 0.1 0.2 0.4 0.6 0.8
Miles

Top Priorities

1. St. Marie Street
2. Carver Ave
3. Snelling Ave, 19th Ave E, 8th Street Connection

One Mile Buffer Population: 7276

Notes:

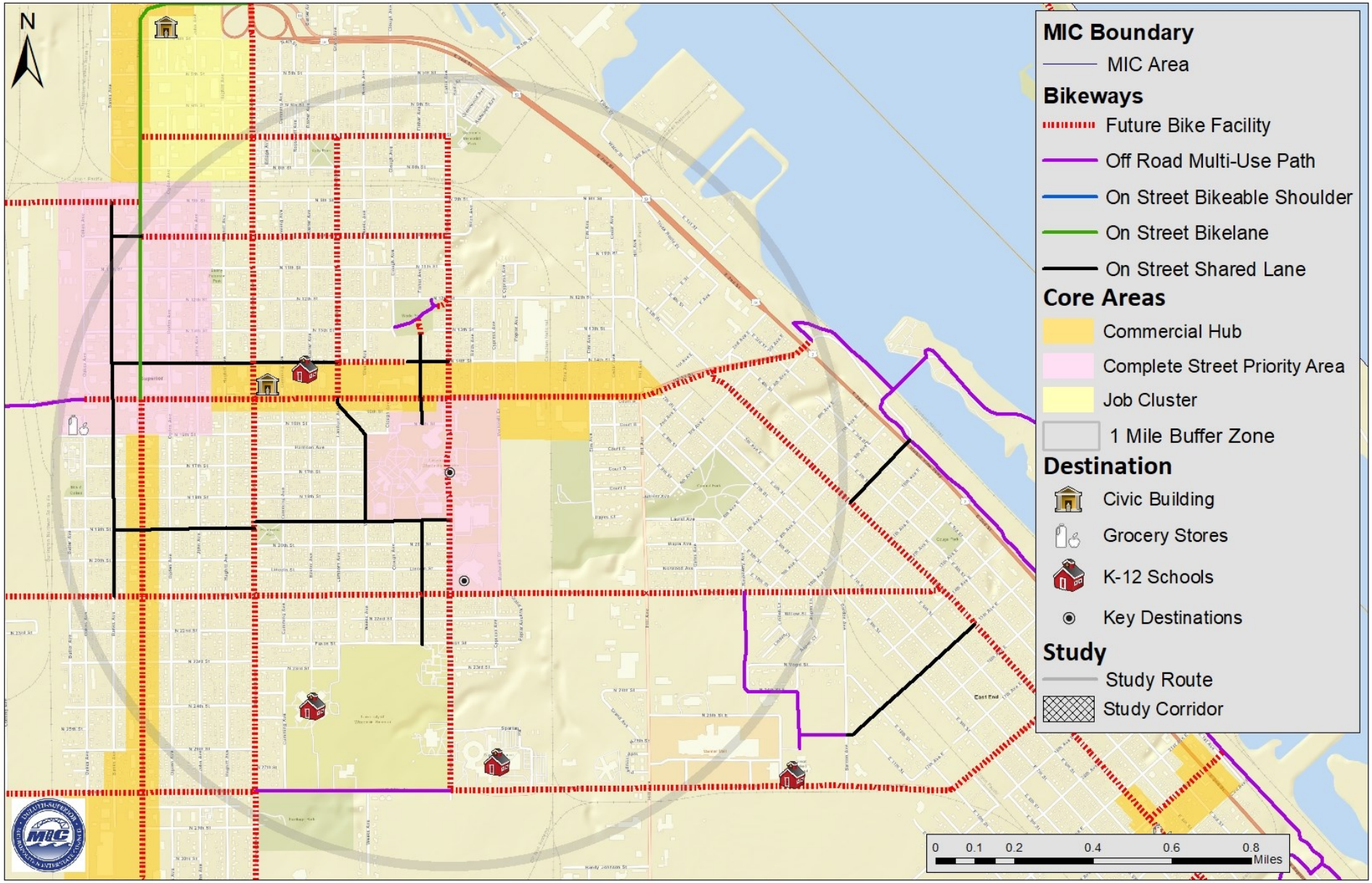
This hub primarily serves UMD students and Chester Park residents.

This commercial has a cluster of goods and services on the Woodland Ave and Kenwood Ave.

Study Corridor

Key Gaps

MAP 4.26: UWS


N
MIC Boundary
MIC Area
Bikeways
Future Bike Facility
Off Road Multi-Use Path
On Street Bikeable Shoulder
On Street Bikelane
On Street Shared Lane
Core Areas
Commercial Hub
Complete Street Priority Area
Job Cluster
1 Mile Buffer Zone
Destination
Civic Building
Grocery Stores
K-12 Schools
Key Destinations
Study
Study Route
Study Corridor
0 0.1 0.2 0.4 0.6 0.8
Miles

Top Priorities

1. Catlin Ave
2. 21st Street
3. Belknap Ave

One Mile Buffer Population: 12716

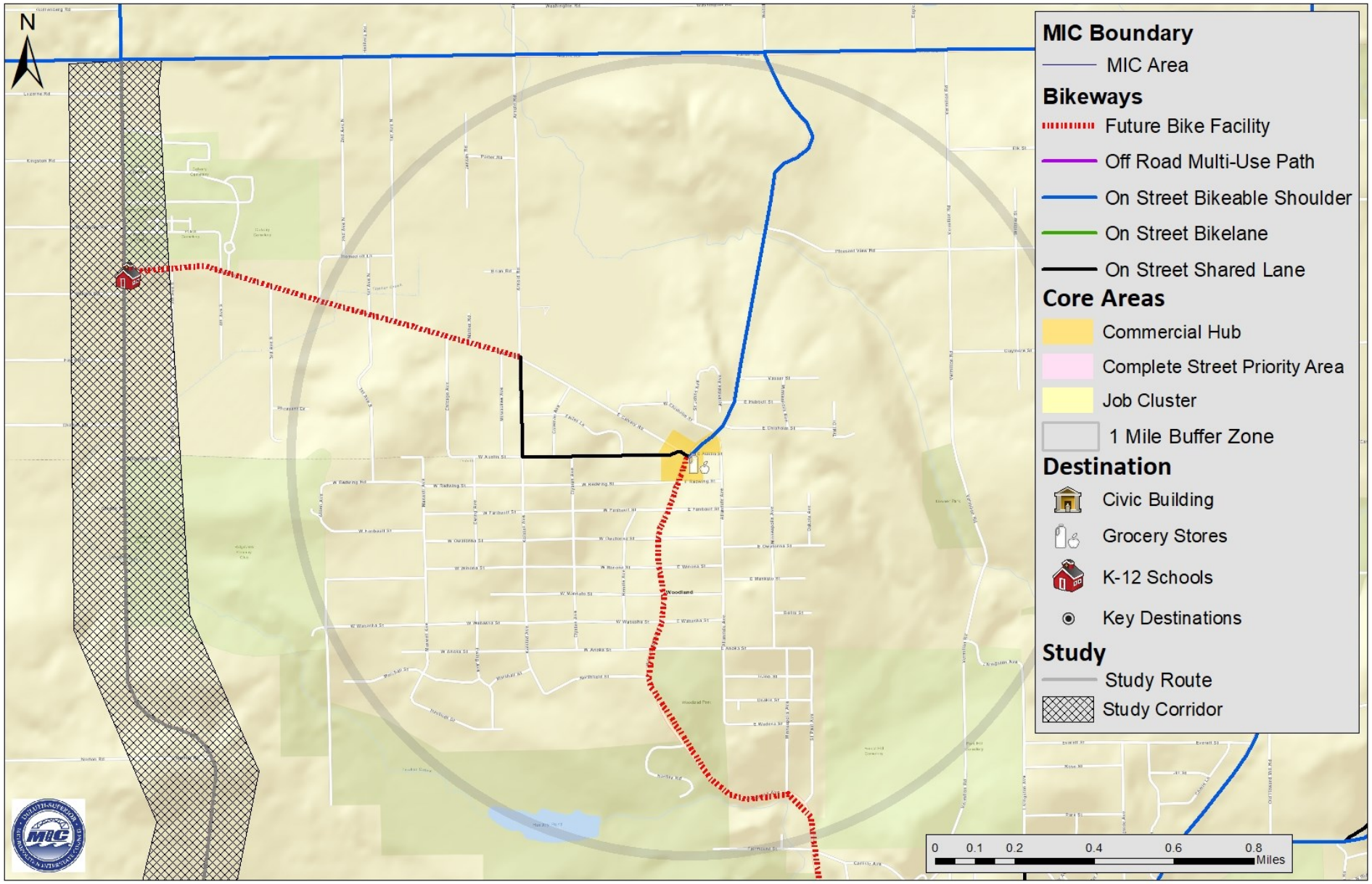
Notes:

This hub primarily serves the students of UWS and residents to the major commercial hubs of the area.

This commercial area has the Belknap Corridor and the Tower Ave corridor.

Key Gaps

MAP 4.27: Woodland—Duluth, Minnesota



Top Priorities

1. Woodland Ave—connecting the neighborhood to the hub.
2. Calvary Rd—providing an all ages, all ability bikeway facility between the Woodland Neighborhood to Homecroft Elementary School.
3. Connecting Woodland Ave south to Hartley Park and the UMD area.

One Mile Buffer Population: 4141

Notes:

This hub primarily serves the Woodland residents.

This commercial has a cluster of restaurants, retail, and grocery stores, and banks.

* Allowing Woodland residents to get around within their neighborhood.

Key Gaps

Key Gaps & Priorities

One Mile Buffer Population: 13491

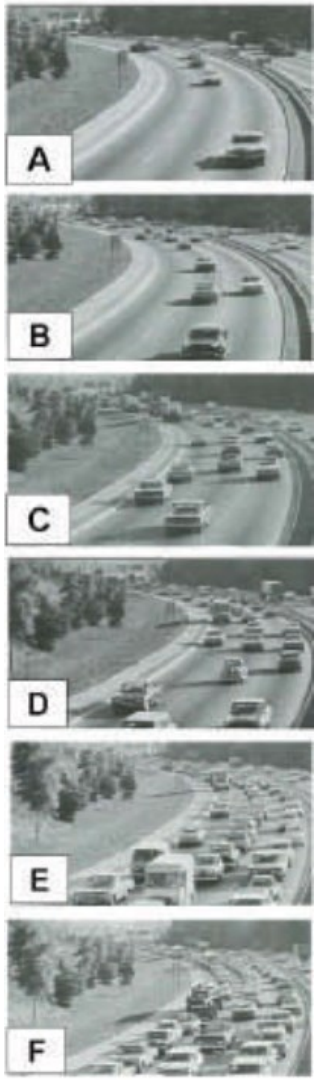


Figure x.x | Vehicle level of service (LOS)

LOS is a qualitative statement about the road's operation (a "grade" from A-F), but is based quantitatively on the number of vehicles present compared to a road's capacity.

Route Attribute	I-35 to Zoo (Routes 1 & 3 both ways)	Zoo to Gary/ NewDuluth (Route 2 both ways)
Avg number of bus trips per day	66 westbound 68 eastbound	28 westbound 30 eastbound
Avg bus headway (minutes)	18 minutes	42 minutes
Avg bus occupancy	48% capacity	28% capacity

Figure X.X | Characteristics of Highway 23 Transit Service

Bus service is more frequent and more heavily utilized east of the transit turnaround at the Lake Superior Zoo.