

To: Greenfield Neighborhood Steering Committee
From: Steve Tremlett
Subject: Meeting Packet Summary
Date: November 27, 2024

Steering Committee,

We have a number of items to cover at our upcoming meeting. Please review the packet information and come with questions. This memo outlines the topics we will cover with greater detail than we intend to cover at the meeting. We will be able to respond to questions on these items, but the presentation will focus on general infrastructure impacts/needs based on the preferred land use and neighborhood concept.

- 1) **Vision, Goals and Strategies** - We have updated the vision statement and goals based on public feedback, the steering committee and City staff. There are additional strategies outlined under each goal with information provided through illustrations and graphics to reinforce the strategy initiatives.
- 2) **Stormwater Management** - Attached are the existing and proposed watershed maps for Greenfield Neighborhood. Below summarizing the stormwater requirements, modeling assumptions, and recommendations/improvements.

Requirements

- For new development in the neighborhood, design practices to maintain pre-development peak runoff rates for the 1, 2, 10, 100, and 200-year, 24-hour design storms.
- The maximum runoff curve number in such calculations shall be those shown in the table below.

Pre-Development Land Use	Hydrologic Soil Group Curve Number			
	A	B	C	D
Woodland	30	55	70	77
Grassland	39	61	71	78
*Cropland	30	58	71	78

**Curve numbers equivalent to meadow land use*

- Maintain 90% of the pre-development infiltration volume, with no caps on area required and no exemptions for roads or soil type, based on the 1981 annual rainfall series.
- Retain 80% of Total Suspended Solids post-development compared to no controls.
- Two closed depressions are present on the east side of the neighborhood. One is east of the railroad tracks near Curry Court (Watershed 150 – Existing Watershed Map), and the other is west of US-14 and south of Irish Lane (Watershed 145 – Existing Watershed Map). New development draining to these two closed depressions are required to meet the following stormwater standards:

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1. Control post-development runoff rates to pre-development rates for the 1, 2, 10, 100, and 200-year, 24-hour storm events.
2. Post-development runoff volume for the 1, 2, 10, 100, and 200-year, 24-hour storm events shall be reduced to 10% less than the pre-development runoff volumes.
3. Maintain 100% of the pre-development infiltration volume, with no caps on area required to and no exemptions for roads or soil type, based on the 1981 annual rainfall series.
4. Establish a flood protection elevation in the closed depression equivalent to standing water level that would result from back-to-back 100-year runoff events.
5. Retain 80% of the Total Suspended Solids post-development compared to no controls.

Stormwater Modeling Assumptions

- Existing culverts crossing driveways and residential roads were assumed to be 18" unless Google Street View could confirm larger diameter culverts. Engineering judgement was used to determine the size of larger culverts.
- Channel cross section geometries and slopes were determined based on an average over the length of the channel.
- Below are the assumed impervious areas by land use type for the proposed neighborhood improvements.

Land Use	Street	Driveway	Sidewalk	Roof	Open
ROW (New)	40%	4%	6%	-	50%
LDR	-	10%	3%	12%	75%
MDR	-	10%	3%	25%	62%
MHD	-	10%	7%	33%	50%
HDR/BP	-	10%	10%	35%	45%
NMU	-	25%	10%	55%	10%
ROW (Existing)	40%	-	-	-	60%

Stormwater Recommendations and Improvements

- During the Blaney Road extension south of Irish Lane, it is recommended that the overflow elevation of the closed depression east of the railroad tracks be lowered. Improvements to the drainageway headed north shall also be considered. This was recommended as a potential alternative during the Curry Court and Old Indian Trail Study to help reduce flooding in the neighborhood. During the study it was determined that it was not a viable solution because the landowner was not willing to provide the City a stormwater easement.
- Most of the development will occur at the edges of the neighborhood. Based on existing topography, it was assumed that the development will require seven stormwater practice locations, which include a pair system approach with a wet pond and infiltration basin. The stormwater practices could be designed to serve multiple developments depending on how each future developer purchases the land.
- All new culverts under roadway crossings shall be designed to convey runoff from the 200-year, 24-hour storm event.
- Stormwater facilities should be integrated into the landscape and aesthetic design of open space to support the creation and restoration of natural landscape including restored/enhanced wetlands.
- A strategic effort could be made to restore the potentially restorable wetlands shown the Waubesa wetlands report (A Watershed Plan for Conserving Waubesa Wetlands by Joanne Kline).

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Potentially restorable wetlands located in proposed open space should be considered for restoration/enhancement to promote natural connectivity through proposed environmental corridors along with mitigating flooding to the neighborhood and improving water quality in Swan and Murphys Creek. **See the Potential Restorable Wetlands Map provided.**

3) **Traffic** - Evaluation is based on two major factors, as described below. Intersection review will be provided at a later date.

- The first part of this analysis is the trip generation by development type, using ITE trip generation standards. There are two versions presented based on the flexible land uses east of the tracks. One includes all lands as residential east of the tracks and the other includes business park uses in this area instead of residential. The housing units are determined by the future land use category, taking the median of the recommended density range per the City's Comp Plan. For example, the low-density residential category ranges from 2-5 units per acre, so 3.5 units per acre is used. To add additional conservatism, a 20% increase in units is applied in the trip generation tables.
- The second is the distribution of new traffic by percentage through the neighborhood. Attached are two scenarios: with and without an interchange. To help in understanding these maps, some potential outcomes of the distribution with an interchange include the following:
 - 70% of new trips will use USH 14 with 50% heading north and 20% heading south.
 - The remaining 30% leaving the neighborhood go north on Syene (5%), Irish Lane (20%) and Whalen (5%).
 - Collector A will divert new trips off of Irish Lane. Existing traffic likely will not change significantly, but new development will see a 50/50 split of new traffic south of Irish, especially with traffic calming measures added to Irish Lane.
 - Extension of Blaney Road to Byrne will reduce long-term increase in traffic on Syene with new development off of Blaney Road not using Syene Road.
 - Collector road that parallels Caine will reduce future trip increases to Caine by up to 20%. About 10% of new traffic will cut over on Old Indian Road to Syene Road.

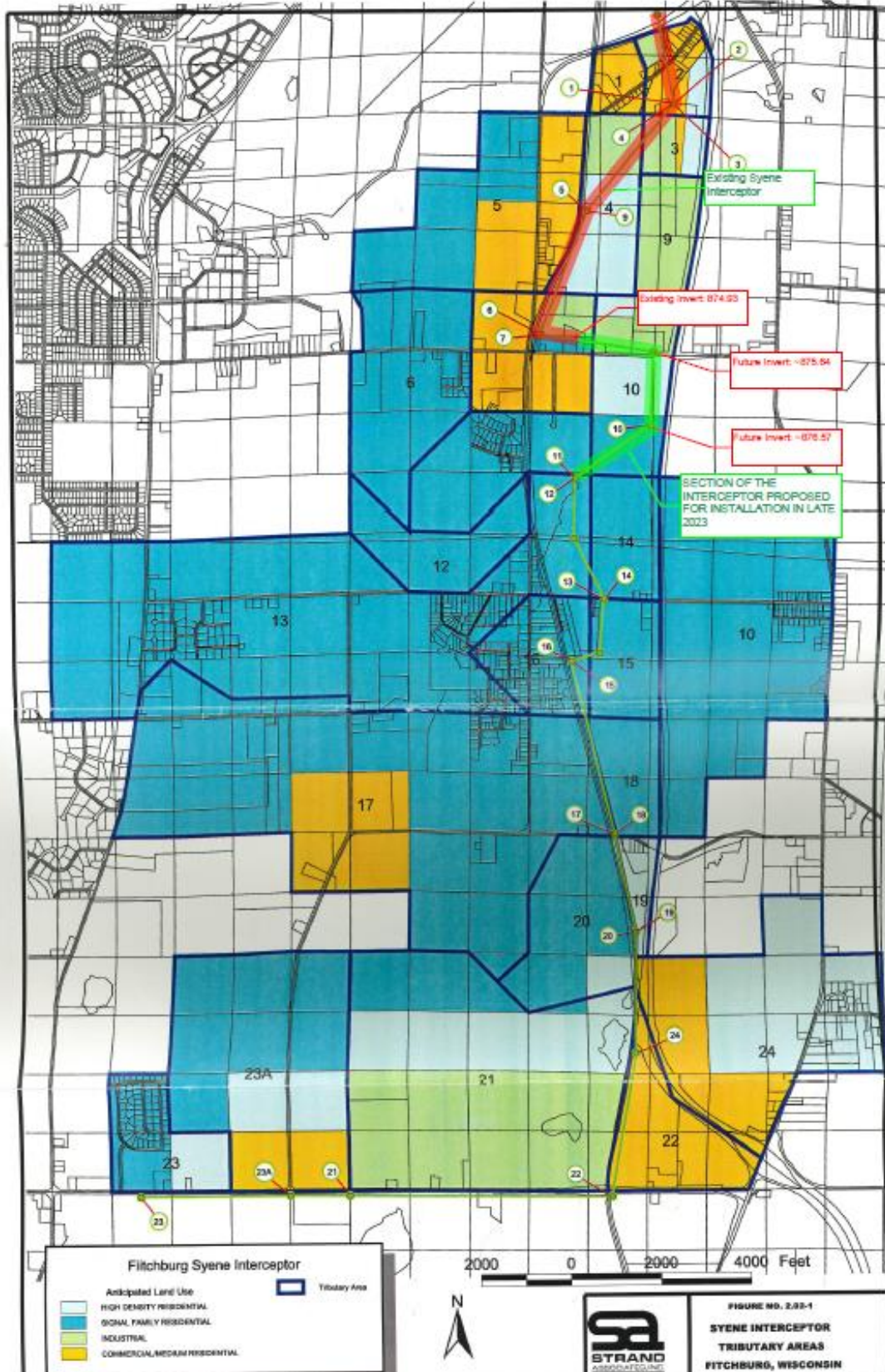
4) **Utilities** - MSA has preliminarily evaluated the sanitary options for the Greenfield Neighborhood Plan based on the Syene Interceptor Tributary Areas Map shown on the next page. All sizing calculations are based on the draft Neighborhood Preferred Land Use Map. The neighborhood plan was split into north and south sanitary drainage areas. Further design efforts will go into establishing inverts and depths of structures within the neighborhood, but it has been preliminarily confirmed that the shown layout will work.

North Area

The northern area of land will drain to a sanitary main along Irish Lane that will tap into the future extension of the interceptor. Preliminary sizing, which includes offsite area, suggests a 24" pipe will be necessary. This includes the potential to service the existing interior neighborhood up to the red line show on the sanitary map.

The tables presented on the next page uses the following assumptions:

- The preferred land uses for the neighborhood includes an area that may develop either as residential or business park. MSA calculated sanitary sewer sizing for these two options, A and B.
- The design assumes average water usage of 80 gallons per day per person, based on feedback and internal discussion that 100 gallons per day is out of date with the advent of new efficient fixtures and household appliances. The number of people per unit is per City of Fitchburg calculations and has been interpolated to cover the steps between density.
- Pipe sizing requirement per Table 5 below.



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Table 1. North Proposed Sanitary Peak Flow (Option A - Residential)

Option A - Median Unit/Acres							
Land Use	Metrics			Average Flows (GPD)	Average Flows (cfs)	Peaking Factor	Peak Flow (cfs)
Commercial/Business Park	1500 GPD/acre	3.9 acres		5,850	0.009	2.5	0.023
Low Density Res. (LMR)	80 GPD/person	64 units	2.8 people/unit	14,336	0.022	4	0.089
Medium Density Res. (MDR)	80 GPD/person	416 units	2.5 people/unit	83,200	0.129	4	0.515
Med-High Density Res. (MHR)	80 GPD/person	447 units	2.3 people/unit	82,248	0.127	4	0.509
High Density Res. (HDR)	80 GPD/person	884 units	2.0 people/unit	141,440	0.219	4	0.875
Neighborhood Mixed Use (Residential)	80 GPD/person	156 units	2.0 people/unit	24,960	0.039	4	0.154
Agrihood	80 GPD/person	63 units	2.8 people/unit	14,112	0.022	4	0.087
Offsite	80 GPD/person	4,560 units	2.3 people/unit	839,040	1.298	4	5.193
Pipe Size Needed = 24"							7.445

Table 2. North Proposed Sanitary Peak Flow (Option B – Business Park)

Option B - Median Unit/Acres							
Land Use	Metrics			Average Flows (GPD)	Average Flows (cfs)	Peaking Factor	Peak Flow (cfs)
Commercial/Business Park	1500 GPD/acre	63.2 acres		94,800	0.147	2.5	0.367
Low Density Residential (LDR)	80 GPD/person	64 units	2.8 people/unit	14,336	0.022	4	0.089
Medium Density Res. (MDR)	80 GPD/person	416 units	2.5 people/unit	83,200	0.129	4	0.515
Med-High Density Res. (MHR)	80 GPD/person	0 units	2.3 people/unit	82,248	0.127	4	0.509
High Density Residential (HDR)	80 GPD/person	0 units	2.0 people/unit	141,440	0.219	4	0.875
Neighborhood Mixed Use (Residential)	80 GPD/person	156 units	2.0 people/unit	24,960	0.039	4	0.154
Agrihood	80 GPD/person	63 units	2.8 people/unit	14,112	0.022	4	0.087
Offsite	80 GPD/person	4,560 units	2.3 people/unit	839,040	1.298	4	5.193
Pipe Size Needed = 24"							7.789

South Area

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The southern area will drain north to Old Indian Trail and will be served by a 24” future connection to the Syene interceptor. MSA also included offsite area located to the south and west of the neighborhood plan that will need to drain through this connection. This 24” connection has been sized to potentially serve the existing neighborhood south of the red line on the sanitary figure.

The tables presented on the next page uses the following assumptions:

- The preferred land uses for the neighborhood includes an area that may develop either as residential or business park. MSA calculated sanitary sewer sizing for these two options, A and B.
- The design assumes average water usage of 80 gallons per day per person, based on feedback and internal discussion that 100 gallons per day is out of date with the advent of new efficient fixtures and household appliances. The number of people per unit is per City of Fitchburg calculations and has been interpolated to cover the steps between density.
- Pipe sizing requirement per Table 4 below.

Table 3. South Proposed Sanitary Peak Flow (Option A – Residential)

Median Unit/Acres							
Land Use	Metrics			Average Flows (GPD)	Average Flows (cfs)	Peaking Factor	Peak Flow (cfs)
Commercial/Business Park	1500 GPD/acre	0 acres		0	0.000	2.5	0.000
Low Density Residential	80 GPD/person	264 units	2.8 people/unit	59,136	0.091	4	0.366
Medium Density Res.	80 GPD/person	0 units	2.5 people/unit	0	0.000	4	0.000
Med-High Density Res.	80 GPD/person	972 units	2.3 people/unit	178,848	0.277	4	1.107
High Density Residential	80 GPD/person	0 units	2.0 people/unit	0	0.000	4	0.000
Neighborhood Mixed Use (Residential)	80 GPD/person	0 units	2.0 people/unit	0	0.000	4	0.000
Agrihood	80 GPD/person	233 units	2.8 people/unit	52,192	0.081	4	0.323
Offsite	80 GPD/person	5,538 units	2.3 people/unit	1,018,992	1.577	4	6.306
Pipe Size Needed = 24"							8.102

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Table 4. South Proposed Sanitary Peak Flow (Option B – Business Park)

Median Unit/Acres							
Land Use	Metrics			Average Flows (GPD)	Average Flows (cfs)	Peaking Factor	Peak Flow (cfs)
Commercial/Business Park	1500 GPD/acre	0 acres		0	0.000	2.5	0.000
Low Density Residential	80 GPD/person	264 units	2.8 people/unit	59,136	0.091	4	0.366
Medium Density Res.	80 GPD/person	0 units	2.5 people/unit	0	0.000	4	0.000
Med-high Density Res.	80 GPD/person	206 units	2.3 people/unit	37,904	0.059	4	0.235
High Density Residential	80 GPD/person	0 units	2.0 people/unit	0	0.000	4	0.000
Neighborhood Mixed Use (Residential)	80 GPD/person	0 units	2.0 people/unit	0	0.000	4	0.000
Agrihood	80 GPD/person	233 units	2.8 people/unit	52,192	0.081	4	0.323
Offsite	80 GPD/person	5,538 units	2.3 people/unit	1,018,992	1.577	4	6.306
Pipe Size Needed = 24"							7.230

Table 5. Pipe Capacity Calculations

D	8"	10"	12"	15"	18"	21"	24"
R	0.333	0.417	0.500	0.625	0.75	0.875	1
A	0.349	0.545	0.785	1.227	1.766	2.404	3.140
P	2.093	2.617	3.140	3.925	4.710	5.495	6.280
R	0.167	0.208	0.250	0.313	0.375	0.438	0.500
N	0.011	0.011	0.011	0.011	0.011	0.011	0.011
C	100.485	104.293	107.510	111.584	115.027	118.020	120.676
S	0.004	0.0028	0.0022	0.0015	0.0012	0.001	0.008
Q (cfs)	0.905	1.373	1.979	2.963	4.310	5.935	23.965

CHAPTER 2

■ PLAN VISION, STRATEGIES & IMPLEMENTATION

12 Vision, Goals & Strategies

This section presents the overall long-term vision for the Greenfield Neighborhood Plan, and states the goals and strategies to reach this stated vision.

21 Design Guidelines

This section is intended to create memorable and desirable buildings and spaces within the Greenfield Neighborhood.

27 Action Plan

This section outlines action steps to improve the study area as it redevelops.

31 Funding Toolbox

This section offers potential funding opportunities that will assist in implementing the action plan in order to achieve the plan's long-term vision for the Greenfield Neighborhood.

VISION, GOALS & STRATEGIES

This section establishes goals and strategies to guide the development of the Greenfield Neighborhood. These supplement the design guidelines and land use strategies in this chapter.

VISION STATEMENT

Greenfield Neighborhood will balance residential and economic growth while preserving the local character and quality of life of its current and future residents.

Neighborhood goals are divided into the following categories and further explained on the following pages:



Housing: Additional housing options will be provided in the neighborhood, but will be strategically placed, designed and buffered to be compatible with the existing Greenfield Neighborhood.



Mobility: Support future regional transportation connections that limit impacts on Greenfield's local streets as the region continues to grow. Implement safe, convenient and attractive streets for everyone regardless of age, ability or mode of transportation (pedestrian, bike, automobile, transit).



Economy: Employment and goods/services will be strategically located and connected to reduce the dependency on longer automobile travel and to provide local and convenient options near the neighborhood.



Quality of Life: Create and maintain open spaces accessible to all residents for recreation and neighborhood character preservation.



Sustainability: Create an economically and environmentally sustainable development pattern, protecting existing natural features. Consider the historical significance of the neighborhood, especially opportunities to preserve farm fields and implementation of low-impact development techniques for infrastructure design.



1. HOUSING GOAL & STRATEGIES

Goal 1 – Additional housing options will be provided in the neighborhood, but will be strategically placed, designed and buffered to be compatible with the existing Greenfield residents.

Strategy #1.1

Encourage a variety of housing types, forms, price points, and tenures in the neighborhood, locating the least dense housing next to existing residential lots.

Incorporating diversity of housing types with varying density and massing can be achieved through careful design considerations. Design guidelines/standards can help achieve compatibility between uses.

Strategy #1.2

Encourage well-designed developments that mitigate any potential conflicts in providing a mix of housing types.

Building forms and site layout should be compatible with the design guidelines established in this Plan. This approach helps to address potential conflicts by setting guidelines that balance the needs and characteristics of various housing options, promoting a cohesive and inclusive community.

Strategy #1.3

Encourage Traditional Neighborhood Design (TND) developments that allow for 'missing middle' and small-lot housing.

Traditional Neighborhood Design (TND) promotes "compact, pedestrian-oriented neighborhoods with a mix of commercial and residential uses, a variety of housing types, and public places where people can socialize and engage in civic life" (Capitol Region Council of Governments). TND also improves land use efficiency and opportunities for alternative modes of transportation.



This neighborhood incorporates varied housing types, using building orientation to mitigate compatibility issues.



This apartment building steps down the building adjacent to a neighboring lower-density residential use.



The above development includes reduced setbacks and porches that provides a welcoming frontage. The building types also fit the "missing middle" housing formats.



2. MOBILITY GOALS & STRATEGIES

Goal 2A – Support future regional transportation connections that limit impacts on Greenfield’s local streets as the region continues to grow.

Strategy #2A.1

Develop a contiguous bike network through the neighborhood, connecting to the rest of the City and to the greater Dane County trail system.

Multi-use paths promote healthy lifestyles, provide alternative modes of transportation, and enhance the value of nearby neighborhoods. These benefits are amplified when they are interconnected and integrated into regional networks.

Strategy #2A.2

Encourage alternative north-south and east-west collector streets that shift traffic growth away from S. Syene and Irish Lane.

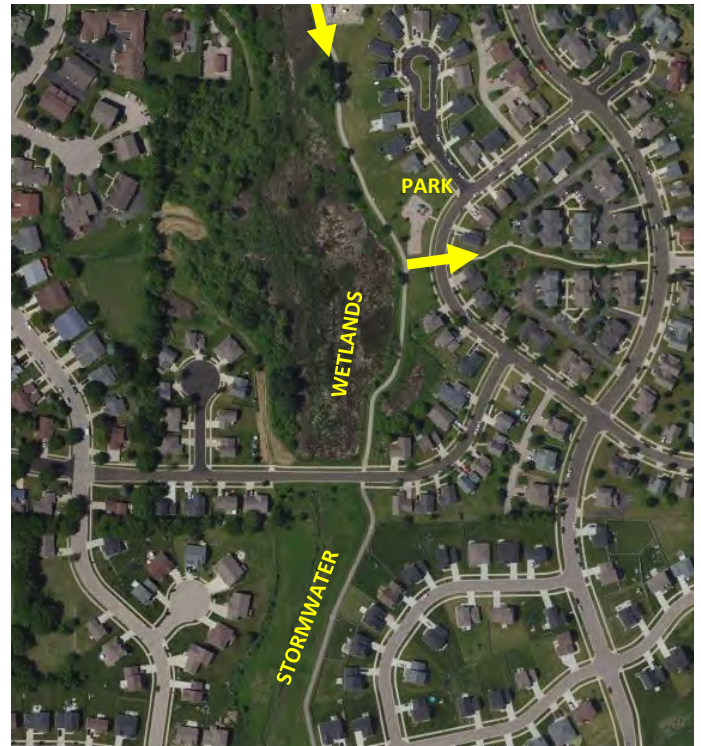
Channeling traffic to larger arterial roads, improves overall traffic flow and reduces local congestion. It enhances safety in residential areas by minimizing through-traffic.

Strategy #2A.3

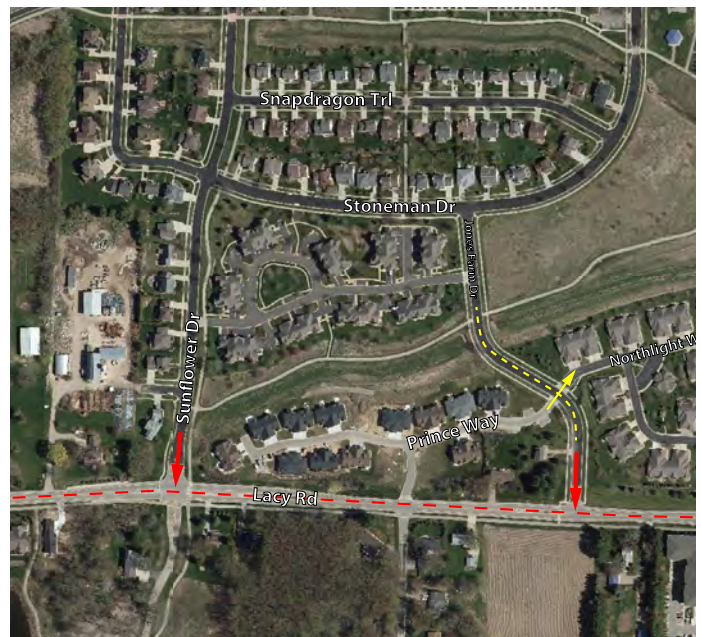
Continue considerations of a USH 14 interchange between the Lacy Road and M/MM interchanges to plan for regional transportation needs.

Future growth to the east and south of the neighborhood will impact level of service of existing roads. As the area continues to urbanize, the need for an additional interchange may be warranted. It is important to assess the potential long-term impacts of the interchange on the current and future developments near USH 14 and north of Irish Lane, should it be planned for or constructed in the proposed location.

The interchange will enhance accessibility and reduce travel time for residents, alleviating local traffic congestion by providing a direct route to major roads. Consider connecting the interchange with Collector A and County Highway B.



This trail connects a major roadway to a neighborhood park to several local neighborhood streets.



New neighborhoods making road and pedestrian connections that were established in older subdivisions.



2. MOBILITY GOALS & STRATEGIES

Goal 2B – Implement safe, convenient and attractive streets for everyone regardless of age, ability or mode of transportation (pedestrian, bike, vehicle, transit).

Strategy #2B.1

Provide sidewalks and bike facilities (if necessary) along all streets to promote walkability and connectivity.

Walkability has become increasingly important in residential development in urban and suburban areas. Sidewalks provide safe and comfortable mobility for passive use.

Strategy #2B.2

Promote narrower streets to increase pedestrian safety and to develop land more sustainably.

Roads provide access and parking storage. The wider the road the greater cost to maintain (e.g., street sweep, plow and repair). Right-sizing roadways has safety, financial and sustainable impacts.

Strategy #2B.3

Encourage proposed streets to connect to existing streets and intersections, wherever practical.

Dead-end streets and non-continuous trail networks limit options when moving throughout a community. This reduced mobility increases travel distance and traffic on primary roadways, can frustrate drivers/ pedestrians, and discourages non-motorized travel. Development shall make every effort to connect to existing facilities (trails, roadways and intersections).

This Plan anticipates neighborhood development to occur in fragments over time; future development should anticipate and provide necessary connections between developments. Cul-de-sac and dead end streets proposed due to terrain or natural features should install multi-use paths connecting dead-ends to the street network.



Sidewalks can enhance safety for pedestrians, promote physical activity, and improve accessibility for all residents.



The photo above illustrates of a safe crosswalk connecting to a path.



2. MOBILITY GOALS & STRATEGIES (cont.)

Strategy #2B.4

Utilize traffic calming measures (e.g., bump-outs, traffic circles, speed tables, rectangular rapid flash beacons) where appropriate to create a better street environment for pedestrians and cyclists.

The frequency and speed of vehicles can greatly impact road safety, especially for pedestrians/bicyclists. “Traffic calming” measures that can be designed or retrofitted into a roadway can reduce vehicle speeds, and in some cases discourage vehicle usage (cut-through traffic).

Strategy #2B.5

Design streets, multi-use paths, and trails that include adequate lighting to ensure safety of users.

Well-designed lighting can enhance visibility and promote a sense of security, encouraging more people to walk, bike, and engage in outdoor activities. By integrating effective lighting solutions, communities perceive the streets as more inviting and welcoming.

Traffic Calming Measures reduce traffic speeds and/or cut-through traffic with the goal of increasing safety for motorists, bicyclists, and pedestrians.

- **Striping Drive Lane Edge:** Painted solid line to reduce the perceived lane width and separate it from parking or biking space.
- **Tree-lined Streets:** Streets with landscaped center medians and/or perimeter trees can affect driver perceptions of lane width, inducing lower speeds.
- **Speed Display Sign:** Street sign with radar that displays actual speed and prompts motorists to slow down (via blinking or flashing lights).
- **Bump-out (bulb-out, neck-downs):** Curb extensions into the road section (outside travel lanes) that narrows the road and length of pedestrian crossings.
- **Raised Crossing / Intersection:** Speed table across the entire crossing/intersection that reduces vehicle speed and creates level crossings for pedestrians.
- **Raised Median / Crossing Refuge:** Placement of a raised island in the middle of the roadway to narrow the vehicle travel lanes.
- **Chicanes and Traffic Circles:** Features that shift the path of traffic horizontally within the right-of-way. Chicanes do this mid-block and traffic circles do this within intersections.



Raised Median / Crossing Refuge, Plus Speed Table



Speed Display Sign



Chicane



Bump-out



3. ECONOMY GOAL & STRATEGIES

Goal 3 – Employment and goods/services will be strategically located and connected to reduce the dependency on longer vehicle travel and to provide local and convenient options near the neighborhood.

Strategy #3.1

Commercial uses and building forms will be compatible with general neighborhood context.

Commercial / Mixed Use nodes shall be designed to be compatible with the surrounding residential area. The scale, massing and uses within the employment area shall consider design solutions to minimize its impact on the surrounding neighborhoods. Pedestrian and vehicle connections shall be provided between residential and the employment area(s).

Strategy #3.2

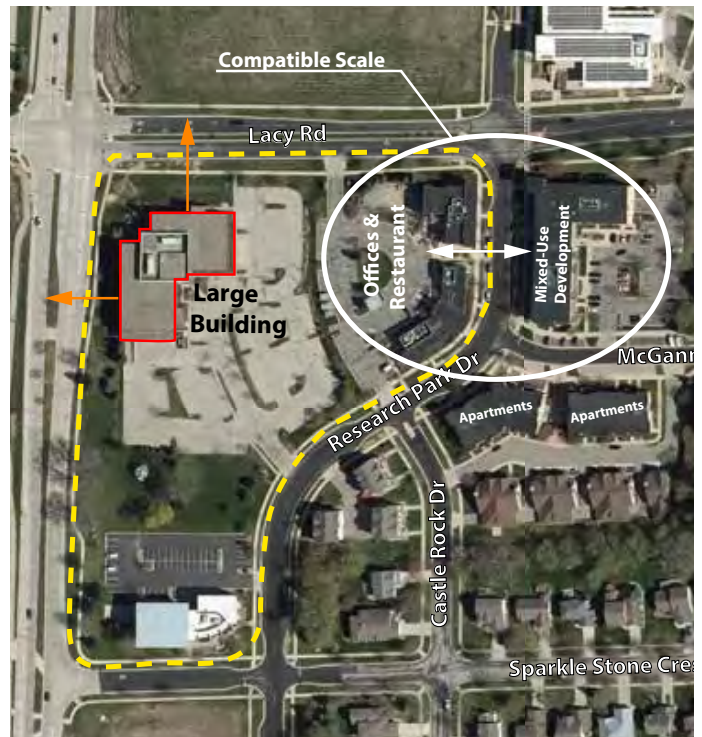
Promote flexible land uses east of the tracks that respond to market needs, fostering integrated neighborhoods while preventing isolated residential areas.

Encouraging flexible land uses enables a more tailored and timely response to market needs at the time of development. To build a strong sense of community, any proposed development within this flexible land use area shall provide sufficient area dedicated to residential uses. Fragmented residential developments can lead to long-term home value deterioration and reduce the sense of place and neighborhood feel for residents of the developments.

Strategy #3.3

Enforce property maintenance ordinances to ensure aesthetically pleasing business park and commercial areas.

Enforcing property maintenance ordinances ensures that business parks and commercial areas remain visually appealing, attracting more customers and investors. This strategy also helps maintain property values and fosters a positive community image.



This example ties the business park to the neighborhood along a minor street, as well as by an off-street trail. Building scale in the business park is smaller closer to the residential area.



This two-story mixed use building has a pitched roof and gables compatible with single-story ranch homes in the surrounding well-established neighborhood.



4. QUALITY OF LIFE GOAL & STRATEGIES

Goal 4 – Create and maintain open spaces accessible to all residents for recreation and neighborhood character preservation.

Strategy #4.1

Plan and design public infrastructure that is sustainable, attractive and low maintenance.

Effective streetscape design can improve pedestrian experience and safety, address stormwater management, and minimize necessary landscaping efforts. Elements including median or terrace treatments, landscaping, and paving design along primary roadways can also establish / enhance the community's identity.

Species of street trees should be selected for qualities including low maintenance requirements, canopy size, climate survivability, and pollution tolerance. Road medians must be sized appropriately for the health of trees and plantings. Planting beds should utilize native plant species such as prairie grasses and require as little mowing as possible.

Strategy #4.2

Design new neighborhood residential areas around community gathering places.

Public/community facilities are the activity hubs within a neighborhood. Historically these facilities were placed on the premiere site within a neighborhood/district/community. These facilities should be planned for and located in areas that are accessible and visible within the neighborhood.

Strategy #4.3

Plan for parks that vary in size and facilities to fulfill ranging neighborhood recreation interests consistent with the Fitchburg Parks and Open Space Plan.

Parks should be within 1/4- to 1/3-mile from residents with at least one neighborhood park within a 10 minute walk. Larger neighborhoods should consider more than one park with varying programs, where practical.



This Sun Prairie neighborhood includes a variety of open spaces that provides for diversity of uses and amenities, including a plaza (red circle), boulevard street (yellow circle), and traditional neighborhood park (green circle). Below are examples of attractive streetscaping.

Strategy #4.4

Make intentional multi-modal connections between local and regional park/open space areas.

Environmental features offer a break from the urbanized environments we live in. Trails and/or park amenities should take advantage of these features. Tying together several park and open space destinations provides a benefit to all neighborhoods residing along the route(s).



5. SUSTAINABILITY GOALS & STRATEGIES

Goal 5A– Create an economically and environmentally sustainable development pattern, protecting existing natural features.

Strategy #5A.1

Provide adequate vegetative buffers between development and natural features.

Vegetated buffers (i.e., dense growth of shrubs, trees, high grasses, perennials, and other plants) can help slow, capture and filter stormwater runoff.

Strategy #5A.2

Integrate environmental corridors and open space into a comprehensive stormwater management system that provides key ecosystem services on a regional scale where appropriate.

Stormwater management areas can expand the open space corridor. Dry ponds can be seeded as a prairie and wet ponds can become a “pond” feature.

Strategy #5A.3

Integrate environmental features into the neighborhood as common open spaces for active or passive recreation, public gathering spots, or flood protection and stormwater management.

This approach enhances quality of life by providing areas for recreation and social interaction. These spaces can serve as natural flood protection and improve stormwater management.

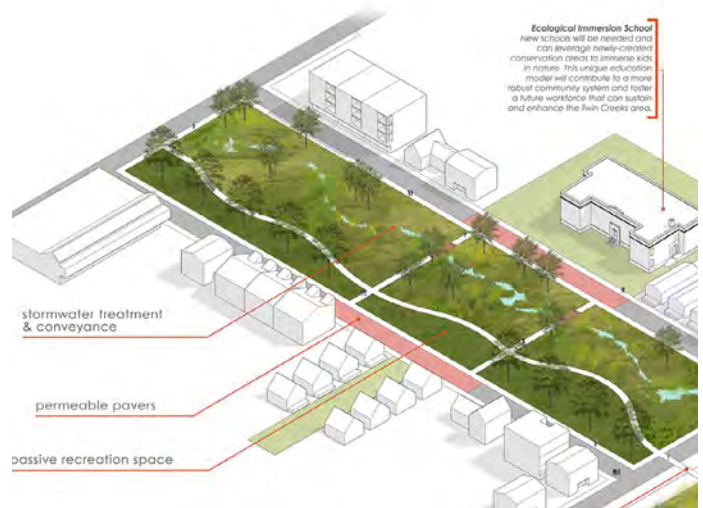
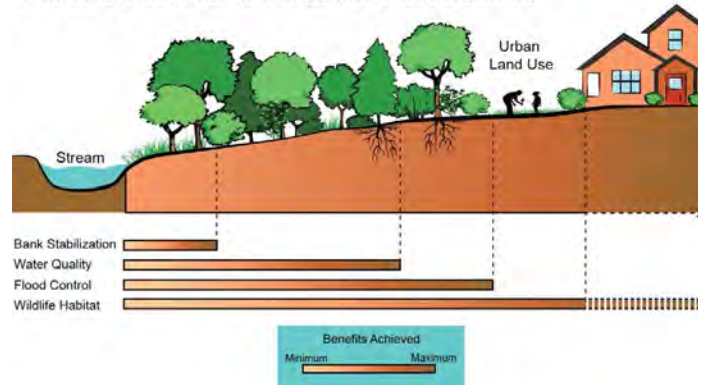
Strategy #5A.4

Consider opportunities for alternative energy use within neighborhood design.

Future neighborhood development can support alternative forms of energy through solar-friendly urban design techniques and EV ready development. Aligning roadways east-west has roof planes facing north-south, allowing for maximum surface for solar panels.



The Wider the Buffer the Greater the Benefits



This diagram illustrates how stormwater management areas could also serve as a buffer between different uses, and provide passive recreational activities if connected to trails.



5. SUSTAINABILITY GOALS & STRATEGIES (cont.)

Goal 5B – Consider the historical significance of the neighborhood, especially opportunities to preserve farm fields and implementation of low-impact development techniques for infrastructure design.

Strategy #5B.1

Strategically preserve natural lands and existing farmland that can complement neighboring housing developments.

This approach maintains the neighborhood's agricultural heritage, honoring its long-standing farming traditions and reinforcing the community's unique identity. Preserving natural lands and farmland can protect local biodiversity and promote outdoor activities and community engagement. Additionally, these preserved areas can serve as buffers between residential developments and agricultural operations, reducing potential conflicts while providing residents with scenic views and recreational opportunities that enrich their quality of life.

Strategy #5B.2

Ensure site development and infrastructure improvements occur in area with least possible impact to natural environments.

This approach preserves local ecosystems and biodiversity. This strategy also promotes sustainable growth, reduces environmental degradation, and enhances the community's overall quality of life.

Strategy #5B.3

Encourage landscaping practices on public and private property that help to filter and infiltrate rainwater.

This helps reduce runoff and prevent flooding, protecting local waterways from pollution. This strategy also promotes groundwater recharge, supports healthy plant growth, and enhances the aesthetic appeal of properties.



The photo above presents design strategies to maximize infiltration through pervious materials. Below is an example of an Agrihood Development, balancing farming and residential needs.



What is "Low-Impact" Development (LID)?

LID is an ecologically friendly approach to site development and storm water management that aims to mitigate development impacts to land, water, and air. The approach emphasizes the integration of site design and planning techniques that conserve the natural systems and hydrologic functions of a site (e.g., reducing roadway surfaces, permeable pavement surfaces).

Strategy #5B.4

Encourage energy-efficient buildings consistent with the city's existing energy targets.

Energy targets are available in the Fitchburg Sustainability Plan and the Clean Energy Resolution.

DESIGN GUIDELINES

This section is intended to create memorable and desirable buildings and spaces within the Greenfield Neighborhood. The objective is to create unique neighborhoods that residents will love and continue to invest in for many decades.

Nonresidential and multifamily developments are encouraged to meet these guidelines.

1. ECO / SUSTAINABLE DESIGN

- A. Orient buildings on the site to maximize natural light, ventilation, and solar energy opportunities.
- B. Consider using green roof technologies.
- C. Use “dark sky” friendly exterior lighting and LED technologies. “Dark sky” certified outdoor lighting is required by the City of Fitchburg ordinances.
- D. Consider using mechanical systems that utilize renewable energy (solar, wind, geothermal) and minimize greenhouse emissions.
- E. Utilize rain water collection, storage and distribution for irrigation systems.
- F. Consider reusing “grey” water (wastewater generated from domestic activities such as laundry, dishwashing, and bathing) for irrigation and other non-potable uses.
- G. Include bio-filtration basins and swales as a part of the stormwater systems on site to promote infiltration and groundwater recharge and reduce sediment runoff.
- H. Include oil, grease, and sediment traps for parking lots.
- I. Consider using porous paving materials (asphalt, concrete and pavers) in parking areas, walkways, etc.
- J. Use drought tolerant landscaping materials to limit water use.
- K. Incorporate Level 1 or 2 electric vehicle charging stations within exterior and covered parking areas.



2. SITE PLANNING

- A. Minimize the amount of disturbance to the existing terrain. Sites and buildings should be designed to fit within the existing topography to the extent possible, while still providing an inter-connected street grid and the desired composition of land uses.
- B. Design sites to preserve large native trees and other significant vegetation, including prairie remnants, wetlands, and similar features.
- C. Public spaces and plazas are encouraged, where appropriate.
- D. Building setbacks should be similar to setbacks of adjacent building within a given block.
- E. Buildings and the primary entrance should front the public street.



The ADA ramp is incorporated in the stair entrance and meets the needs of all users.



An example of a development that preserves the local trees through parkland dedication, providing an attractive public space for the surrounding residences.

3. SIGNAGE & LIGHTING

- A. Appropriately-scaled signage is critical and should complement the building and site. Wall, projecting, and ground signs should be integrated within the overall building design in color, style and articulation.
- B. Where freestanding ground signs are proposed, the use of monument signs is preferred over pole or post mounted signs. Shrubs and/or perennial planting beds should be planted around freestanding signs.
- C. Lighting on exterior signs is encouraged to be mounted externally, above the sign, and directed downward, or internally light for freestanding signs..
- D. Full cut-off (dark-sky compliant) exterior lighting is encouraged in all locations to reduce glare and light pollution. "Dark sky" certified outdoor lighting is required by the City of Fitchburg ordinances.



Examples of full cutoff fixtures that minimize glare and light pollution.

4. ARCHITECTURE & DESIGN

- A. Buildings should utilize details or changes in materials to create a discernible base and top. Multi-storied buildings should have a horizontal expression line between the first and upper floors.
- B. Buildings should establish vertical proportions for the street facade (e.g., expression of structural bays, variation in material, and/or variation in building plane), and for the elements within that facade (e.g., windows, doors, structural expressions, etc).
- C. Avoid large, undifferentiated building walls and roof lines. Desired design features include variation in materials and colors, projecting and recessed bays, and variation in building heights.
- D. Street-facing facades should use durable and high-quality building materials. All sides of the building should include materials and design characteristics consistent with the front facade. Use of lesser quality materials for the sides and rear facades should be minimized. Vulnerable materials, such as EIFS, should not be used.
- E. All buildings should have clearly-defined and welcoming entrances. Awnings and canopies are strongly encouraged on ground floor facades of commercial, mixed use and apartment buildings. Awning colors should relate to and complement the primary colors of the building facade. Glowing awnings (backlit, light shows through the material) are discouraged.
- F. All service, refuse, garage doors, mechanical equipment and loading dock areas should be screened from public view through strategic placement, landscaping, and/or architectural design integration. For sites with dual frontage configurations, these features should generally be located along a side yard, and not prominently visible from either the collector/arterial road or the local street.



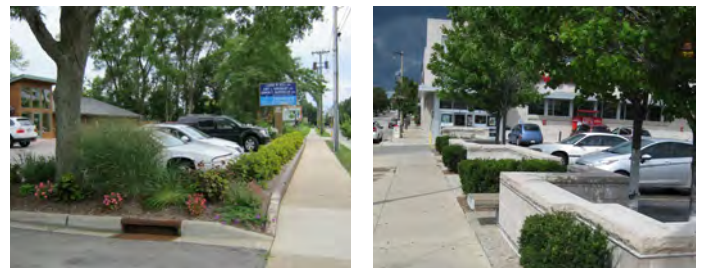
Examples of various techniques in use to break down the apparent mass of a large building, including canopies, recessed decks, recessed top story, and variations in materials and wall plane.

5. PARKING, SCREENING & LANDSCAPING

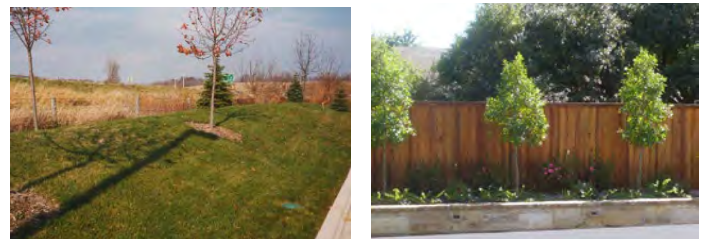
- A. Shared parking between uses is encouraged, to make more efficient use of land for parking.
- B. Parking is encouraged to be located in the side yard and rear yard, or beneath buildings.
- C. Parking and loading areas visible from the public street should be screened with berming, landscaping, fencing or a combination of these three.
- D. Construct pedestrian walkways between the public sidewalk and primary building entries. On-site walkways should be separated from traffic and designed to safely connect the building to parking lots and other destinations on the site.
- E. Parking lots should be landscaped along their edges and within each parking island. The incorporation of required stormwater detention and infiltration devices into the design of the parking area is encouraged.
- F. All parking areas should have concrete curbs to protect landscaping areas, excluding those areas dedicated for snow storage. The curbs may contain gaps to allow stormwater flow into infiltration basins.
- G. Fencing and screening should be of similar materials as primary building(s).
- H. Landscape design should use plant species native to the region, especially buffering wetlands and other significant natural features.



This illustration shows two developments on adjoining lots sharing parking and an access drive. A sidewalk connects the two developments through the parking area.



Example of well landscaped parking edges.



Examples of desired stormwater management designs within parking lots.

6. AGRIFOOD

This section aims to preserve and protect large tracts of farmland and cluster appropriately designed development in areas that are less visually or environmentally sensitive. In addition to all other guidelines, the following is recommended for Agrihood Uses:

- A. Preservation of natural resources:** The development should aim to preserve visually sensitive areas and important natural resources, by clustering homes in a traditional village layout.
- B. Open Space:** To balance the farming and residential uses, the agrihood should maintain 60 to 70% of the land as farmland open space.
- C. Housing Density:** The remaining 30-40% of the land should be single-family on 1/8 acre lots or smaller, duplexes, triplexes, fourplexes, or small multi-unit buildings (8 units or less), with a density of 8 to 20 units per acre.
- D. Interconnected Trail Network:** It is recommended to have a network of shared-use trails through the development, connecting important community amenities while linking to trails in the neighborhood. This encourages outdoor activity and enhances community connectivity.
- E. Community Engagement:** Include project components that encourage engagement with food-production spaces, such as trails, edible landscaping, community gardens, and teaching gardens.



Diagram showing the balance between development and open spaces.



The examples above show a traditional village layout, and illustrate how the different houses share similar architectural language and style.

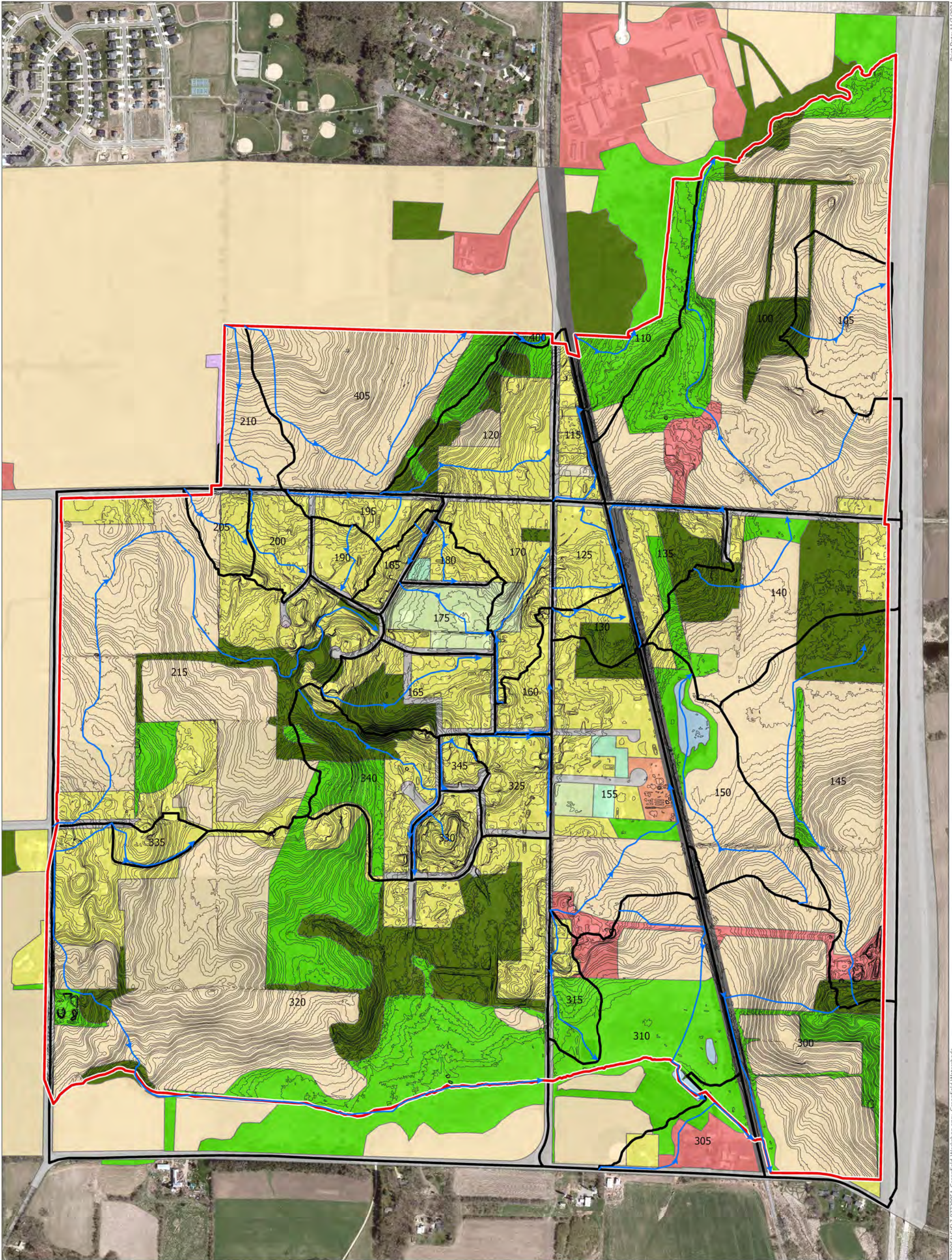
7. COMPATIBILITY GUIDELINES (ADJACENT TO LOW-INTENSITY RESIDENTIAL)

These compatibility guidelines should apply to all new multi-unit residential, office and/or mixed use development of three-stories or larger and/or any development requiring a Planned Development (PD) zoning approval located on land abutting or across a street or alley from low-intensity residential. For purposes of this section, low-intensity residential development should mean single-family, duplex, townhomes (6 or less units), and small multi-unit buildings (8 or less units).

- A. Use Intensity.** In developments with multiple buildings with varying intensities, the development should locate buildings with the least intense character (e.g., lower heights, fewer units) nearest to the abutting low-intensity residential development.
- B. Building Height.** To ensure that new buildings are compatible in scale with surrounding properties, building height is limited to four (4) stories above ground level, except the height of the proposed structure(s) should not exceed thirty-five (35) feet in height in the following locations:
1. Portion of the structure within sixty (60) feet of a single-family or duplex lot.
 2. Portion of the structure within thirty (30) feet of any other low-intensity residential lot (i.e., structures with 3+ units).
- C. Bulk and Mass.** Primary facades abutting or across a street or alley from low-intensity residential development should be in scale with that housing by employing the following strategies:
1. Varying the building plane setback a minimum of two (2) feet at an interval equal or less than the average lot width of the applicable low-intensity residential uses. For example, if a block of single-family lots is across the street from the development with an average lot width of 50 feet, the applicable facade shall vary its building plane, at a minimum, every 50 feet.
 2. Providing a gable, dormer, or other change in roof plane at an interval equal or less than the average lot width of the applicable low-intensity residential uses. For example, if a block of single-family lots is across the street from the

development with an average lot width of 50 feet, the applicable roofline shall vary, at a minimum, every 50 feet (measured at the roof eave).

- D. Roof Pitch.** The roof pitch of new residential buildings should range between 6:12 and 12:12. The roof pitch of porches shall not exceed that of the residential building to which it is attached.
- E. Architectural Features.** Encourage all the following categories of architectural features, with preference for at least two, to be incorporated into street-facing facades:
1. Porches or porticos
 2. Balconies
 3. Dormers and Gables
 4. Bay Windows
 5. Door and Window Ornamentation which may include surrounds, pediments, lintels and sills, hoods, and/or shutters.
- F. Entrances.** Street-facing facades providing direct access to first story dwelling units through individual entrances are encouraged. Preference is at least twenty-five (25) percent of ground units having direct access.
- G. Garages.** Attached garages shall not face or open towards the street. If this is not attainable, garages shall be sufficiently screened and face the street with the highest intensity of adjacent uses.
- H. Parking.** Parking areas that are visible from the street and located in the building front lot setback should provide buffering at a minimum height of thirty-six (36) inches above the parking surface. Buffering can consist of landscaping, berms, fences/walls, or a combination of these.
- I. Refuse Areas.** Dumpsters should be placed either in the underground garage or behind the building with opaque screening, constructed of the same material of the primary building. If the refuse area cannot be placed behind the building, a wood fence or wall, at least six (6) feet in height, with landscaping around trash enclosures is encouraged.



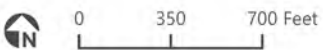
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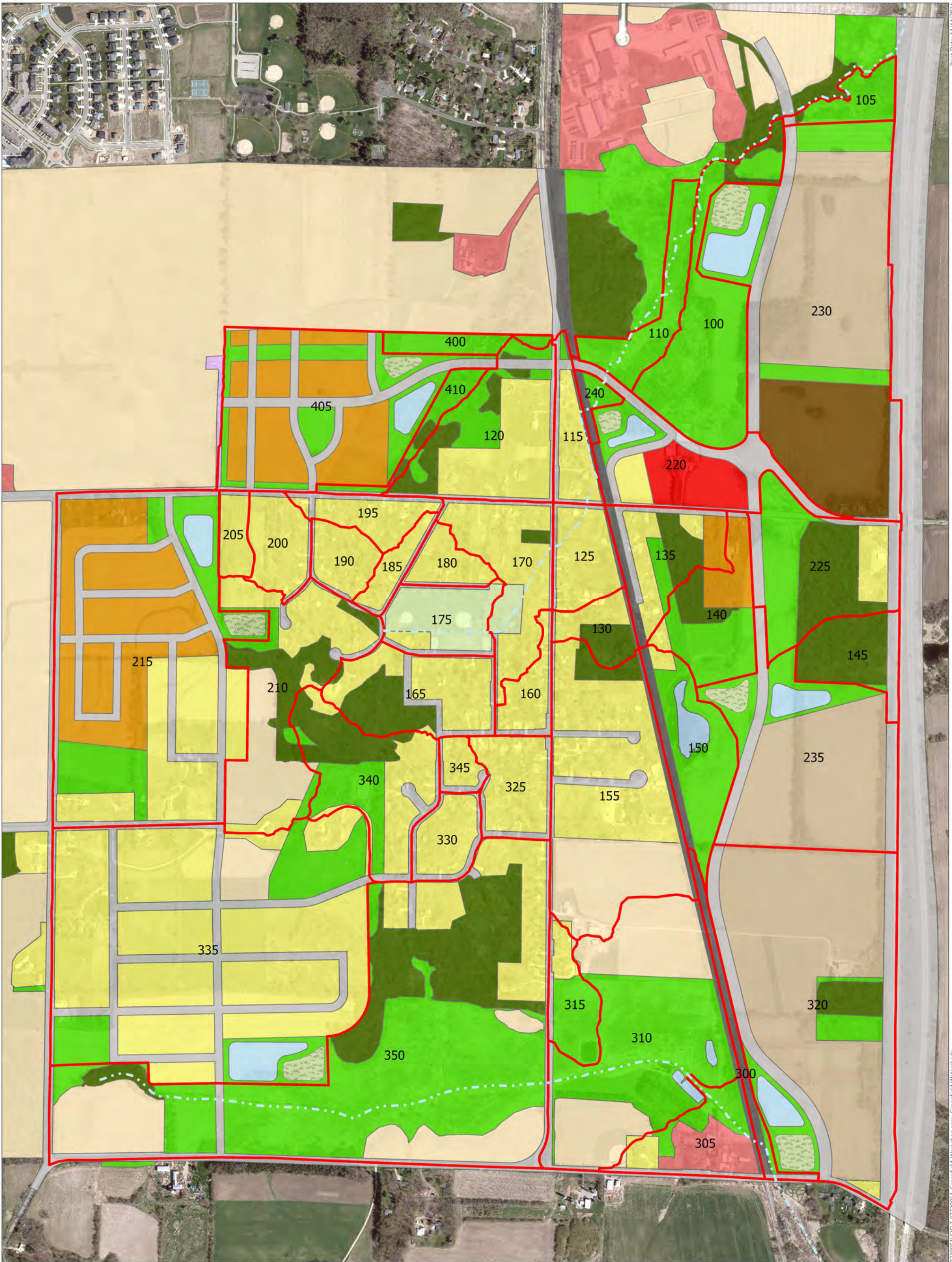
- | | | |
|--------------------|--------------|--------------------|
| Existing_Tc_GFN | Utility | Vacant |
| Project Area | Farmstead | Water |
| 2-ft Contour | Multi-Family | Woodland |
| Existing Watershed | Open | ROW |
| Agriculture | Park | SFR |
| Commercial | Railroad | <all other values> |

EXISTING WATERSHED MAP

GREENFIELD NEIGHBORHOOD PLAN

CITY OF FITCHBURG
DANE COUNTY, WISCONSIN





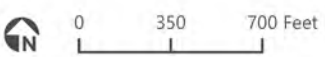
Data Sources:

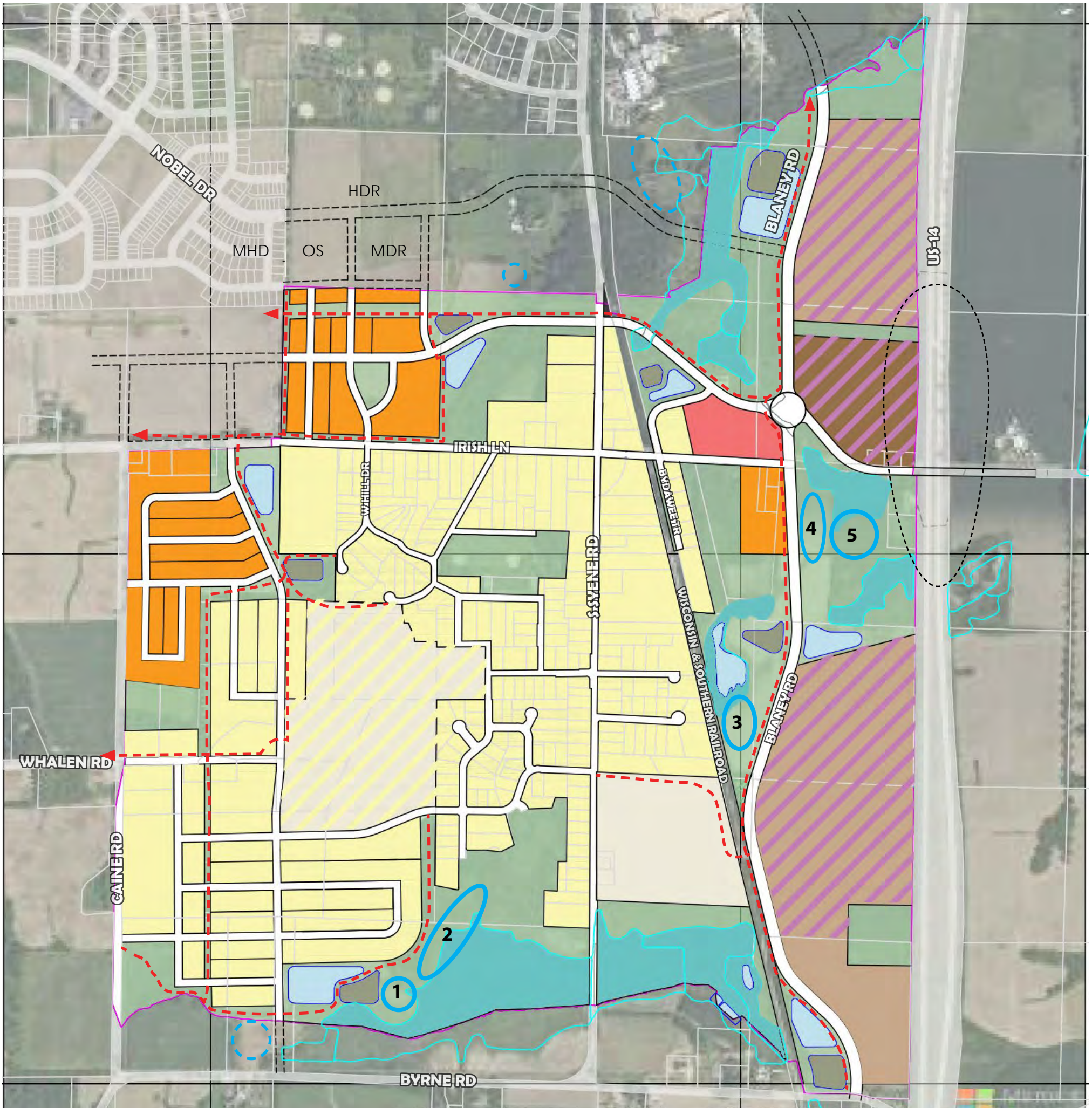
PROPOSED WATERSHED MAP

GREENFIELD NEIGHBORHOOD PLAN

CITY OF FITCHBURG DANE COUNTY, WISCONSIN

- | | | | |
|----------------------|--------------|----------|--------------|
| Intermittent Streams | Farmstead | Vacant | MDR |
| Proposed Watershed | Multi-Family | Water | MHD |
| Agriculture | Open | Woodland | HDR |
| Commercial | Park | ROW | NMU |
| Utility | Railroad | SFR | Infiltration |





This exhibit highlights the wetlands within the study area that should be prioritized for restoration. These wetlands are classified as Potentially Restorable Wetlands (PRW) under the “Rural Open Space” category, according to the study below. Additionally, some PRWs outside the study area are highlighted due to their potential impact on the neighborhood.

Based on “A Watershed Plan for Conserving Waubesa Wetlands” study by Joanne Kline.

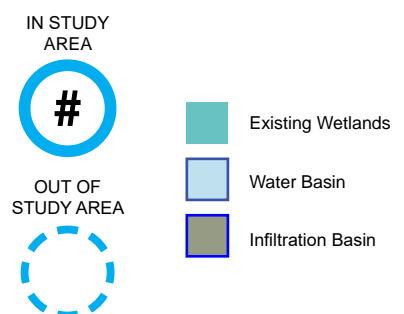


Exhibit 1, Trip Generation Table Scenario A

Greenfield Development															
ITE Land Use	ITE Land Use Code	Parcel Acres	FAR Density	Size	Units		Weekday Two-way	AM Peak Hour			PM Peak Hour				
								Total	In	Out	Total	In	Out		
Single-Family Detached Housing	210	-	-	2669	Dwelling Units	Rate		0.00	0.00		0.00	0.00			
						Percentage		25%	75%		63%	37%			
						Raw Trips	20,709	1,480	370	1,110	2,180	1,375	805		
						Minus Linked Trips	0%	Trips	0	0	0	0	0		
						Driveway Trips	20,709	1,480	370	1,110	2,180	1,375	805		
						Minus Pass-by Trips	0%	Trips	0	0	0	0	0		
						New Trips	20,709	1,480	370	1,110	2,180	1,375	805		
Multi-Family Housing (Low-Rise)	220	-	-	508	Dwelling Units	Rate		0.00	0.00		0.00	0.00			
						Percentage		24%	76%		63%	37%			
						Raw Trips	3,330	180	45	135	240	150	90		
						Minus Linked Trips	0%	Trips	0	0	0	0	0		
						Driveway Trips	3,330	180	45	135	240	150	90		
						Minus Pass-by Trips	0%	Trips	0	0	0	0	0		
						New Trips	3,330	180	45	135	240	150	90		
Multi-Family Housing (Mid-Rise)	221	-	-	557	Dwelling Units	Rate		0.00	0.00		0.00	0.00			
						Percentage		23%	77%		61%	39%			
						Raw Trips	2,610	235	55	180	220	135	85		
						Minus Linked Trips	0%	Trips	0	0	0	0	0		
						Driveway Trips	2,610	235	55	180	220	135	85		
						Minus Pass-by Trips	0%	Trips	0	0	0	0	0		
						New Trips	2,610	235	55	180	220	135	85		
High-Turnover (Sit-Down) Restaurant	932	2.0	-	3.6	1,000 sf	Rate	107.20				9.05	5.52	3.53		
						Percentage						61%	39%		
						Raw Trips	385					35	20	15	
						Minus Linked Trips	20%	Trips	(75)	Not open during AM Peak of Adjacent Street			(5)	(5)	0
						Driveway Trips	310						30	15	15
						Minus Pass-by Trips	0%	Trips	0				0	0	0
						New Trips	310				30	15	15		
Strip Retail Plaza (<40ksf) (Lot 13)	822	2.0	-	16.5	1,000 sf	Rate	54.45	2.36	1.42	0.94		0.00	0.00		
						Percentage			60%	40%		50%	50%		
						Raw Trips	900	40	25	15	110	55	55		
						Minus Linked Trips	20%	Trips	(180)	(10)	(5)	(5)	(20)	(10)	(10)
						Driveway Trips	720	30	20	10	90	45	45		
						Minus Pass-by Trips	0%	Trips	0	0	0	0	0	0	
						New Trips	720	30	20	10	90	45	45		
Development Trip Generation Summary							Weekday Two-way	AM Peak Hour			PM Peak Hour				
							Raw Trip Generation	27,934	1,935	495	1,440	2,785	1,735	1,050	
							Linked Trips	(255)	(10)	(5)	(5)	(25)	(15)	(10)	
							Total Driveway Trips	27,679	1,925	490	1,435	2,760	1,720	1,040	
							Pass-by Trips	0	0	0	0	0	0	0	
							Total New Trips	27,679	1,925	490	1,435	2,760	1,720	1,040	

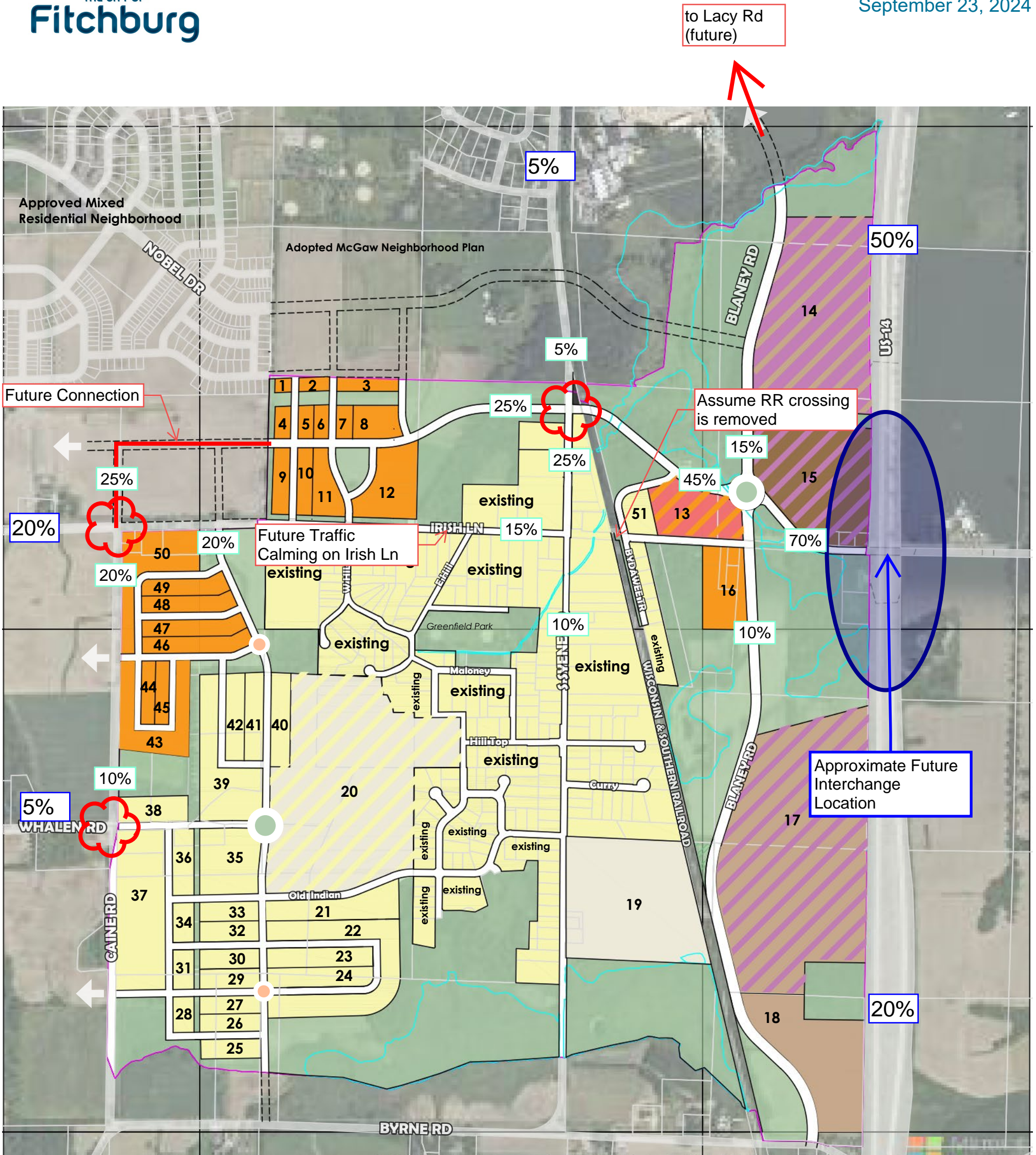
All land uses shown in this exhibit use trip generation rates from the *ITE Trip Generation Manual, 11th Edition*, unless otherwise noted
 Fitted curve equation used when Total Rate is not shown
 All trips rounded to the nearest 5

Exhibit 1, Trip Generation Table Scenario B

Greenfield Development														
ITE Land Use	ITE Land Use Code	Parcel Acres	FAR Density	Size	Units		Weekday Two-way	AM Peak Hour			PM Peak Hour			
								Total	In	Out	Total	In	Out	
Single-Family Detached Housing	210	-	-	1213	Dwelling Units	Rate		0.00	0.00		0.00	0.00		
						Percentage		25%	75%		63%	37%		
						Raw Trips	10,025	720	180	540	1,040	655	385	
						Minus Linked Trips	0%	0	0	0	0	0	0	
						Driveway Trips	10,025	720	180	540	1,040	655	385	
						Minus Pass-by Trips	0%	0	0	0	0	0	0	
						New Trips	10,025	720	180	540	1,040	655	385	
Multi-Family Housing (Low-Rise)	220	-	-	316	Dwelling Units	Rate		0.00	0.00		0.00	0.00		
						Percentage		24%	76%		63%	37%		
						Raw Trips	2,100	120	30	90	155	100	55	
						Minus Linked Trips	0%	0	0	0	0	0	0	
						Driveway Trips	2,100	485	30	90	155	100	55	
						Minus Pass-by Trips	0%	0	0	0	0	0	0	
						New Trips	2,100	485	30	90	155	100	55	
High-Turnover (Sit-Down) Restaurant	932	2.0	-	3.6	1,000 sf	Rate	107.20				9.05	5.52	3.53	
						Percentage						61%	39%	
						Raw Trips	385				35	20	15	
						Minus Linked Trips	20%	(75)			(5)	(5)	0	
						Driveway Trips	310				30	15	15	
						Minus Pass-by Trips	0%	0			0	0	0	
						New Trips	310				30	15	15	
Strip Retail Plaza (<40ksf)	822	2.0	-	16.5	1,000 sf	Rate	54.45	2.36	1.42	0.94		0.00	0.00	
						Percentage			60%	40%		50%	50%	
						Raw Trips	900	40	25	15	110	55	55	
						Minus Linked Trips	20%	(180)	(10)	(5)	(5)	(20)	(10)	(10)
						Driveway Trips	720	30	20	10	90	45	45	
						Minus Pass-by Trips	0%	0	0	0	0	0	0	
						New Trips	720	30	20	10	90	45	45	
General Office Building	710	37.2	0.24	388.9	1,000 sf	Rate		0.00	0.00		0.00	0.00		
						Percentage		88%	12%		17%	83%		
						Raw Trips	3,780	540	475	65	515	90	425	
						Minus Linked Trips	0%	0	0	0	0	0	0	
						Driveway Trips	3,780	540	475	65	225	90	425	
						Minus Pass-by Trips	0%	0	0	0	0	0	0	
						New Trips	3,780	540	475	65	225	90	425	
Manufacturing	140	63.9	0.24	668.0	1,000 sf	Rate		0.00	0.00		0.00	0.00		
						Percentage		76%	24%		31%	69%		
						Raw Trips	2,720	415	315	100	565	175	390	
						Minus Linked Trips	0%	0	0	0	0	0	0	
						Driveway Trips	2,720	415	315	100	565	175	390	
						Minus Pass-by Trips	0%	0	0	0	0	0	0	
						New Trips	2,720	415	315	100	565	175	390	
General Office Building	710	22.1	0.24	231.0	1,000 sf	Rate		0.00	0.00		0.00	0.00		
						Percentage		88%	12%		17%	83%		
						Raw Trips	2,405	345	305	40	335	60	275	
						Minus Linked Trips	0%	0	0	0	0	0	0	
						Driveway Trips	2,405	345	305	40	335	60	275	
						Minus Pass-by Trips	0%	0	0	0	0	0	0	
						New Trips	2,405	345	305	40	335	60	275	

Development Trip Generation Summary		Weekday Two-way	AM Peak Hour			PM Peak Hour		
		Total	In	Out	Total	In	Out	
	Raw Trip Generation	22,315	2,180	1,330	850	2,755	1,155	1,600
	Linked Trips	(255)	(10)	(5)	(5)	(25)	(15)	(10)
	Total Driveway Trips	22,060	2,170	1,325	845	2,730	1,140	1,590
	Pass-by Trips	0	0	0	0	0	0	0
	Total New Trips	22,060	2,170	1,325	845	2,730	1,140	1,590

All land uses shown in this exhibit use trip generation rates from the *ITE Trip Generation Manual, 11th Edition*, unless otherwise noted
 Fitted curve equation used when Total Rate is not shown
 All trips rounded to the nearest 5



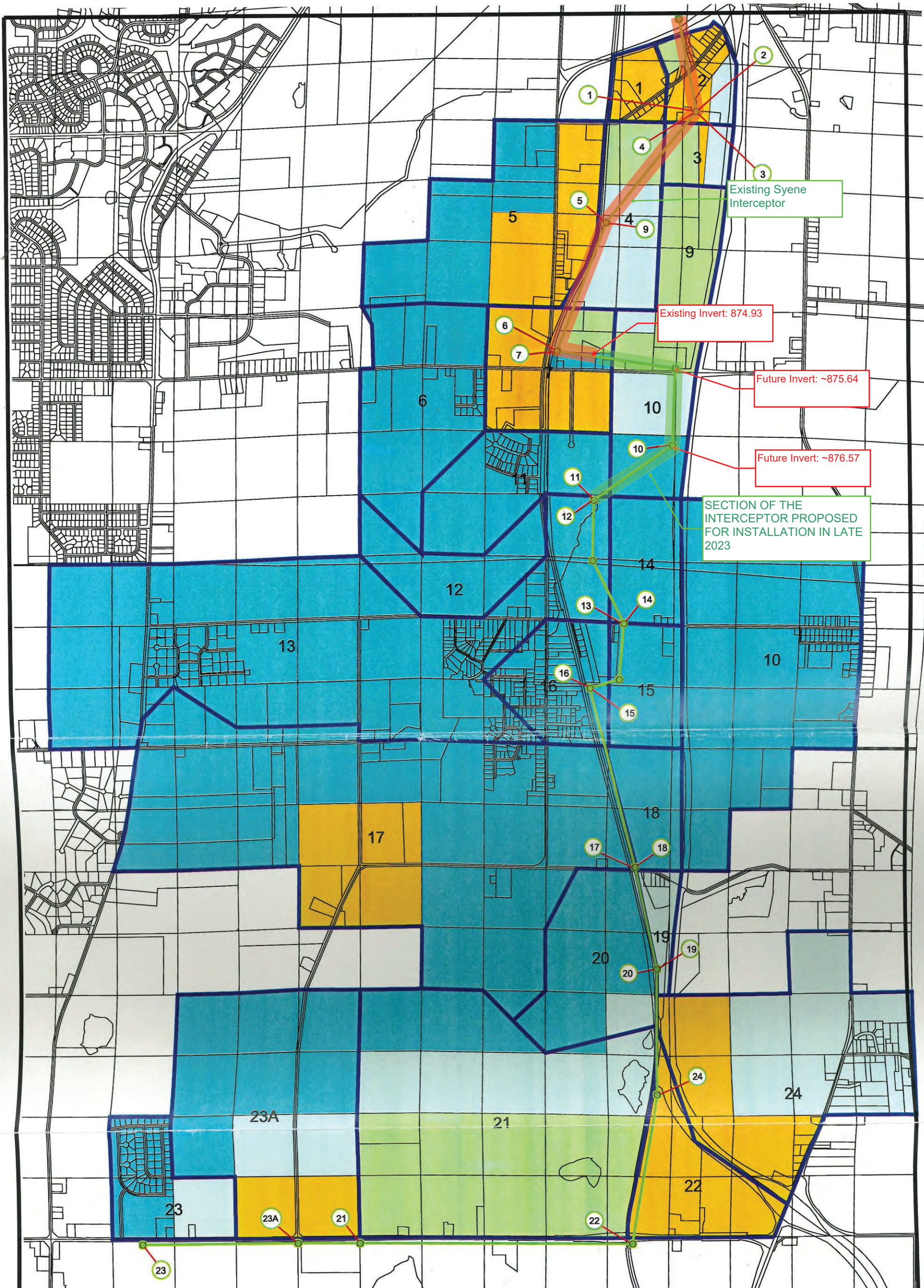
LEGEND

- 37 ACRES** Business Park / Medium-High Density Residential
- 22 ACRES** High Density Residential / Business Park
- 64 ACRES** Medium-High Density Residential / Business Park
- 17 ACRES** Medium-High Density Residential
- 59 ACRES** Medium Density Residential
- 7 ACRES** Neighborhood Mixed Use / Medium Density Residential

- 270 ACRES** Low Density Residential
- 55 ACRES** Farming/Agrihood / Low Density Residential
- 29 ACRES** Farming/Agrihood
- 308 ACRES** Parks, Stormwater Management, & Open Space
- Potential Roundabout
- Potential Traffic Circle
- Proposed Trails

- Study Intersection
- Overall Distributions
- Internal Distributions

0 mi 1/12 mi 1/6 mi 1/3



Existing Syene Interceptor

Existing Invert: 874.93

Future Invert: ~875.64

Future Invert: ~876.57

SECTION OF THE INTERCEPTOR PROPOSED FOR INSTALLATION IN LATE 2023

Fitchburg Syene Interceptor

	Anticipated Land Use		Tributary Area
	HIGH DENSITY RESIDENTIAL		
	SIGNAL FAMILY RESIDENTIAL		
	INDUSTRIAL		
	COMMERCIAL/MEDIUM RESIDENTIAL		

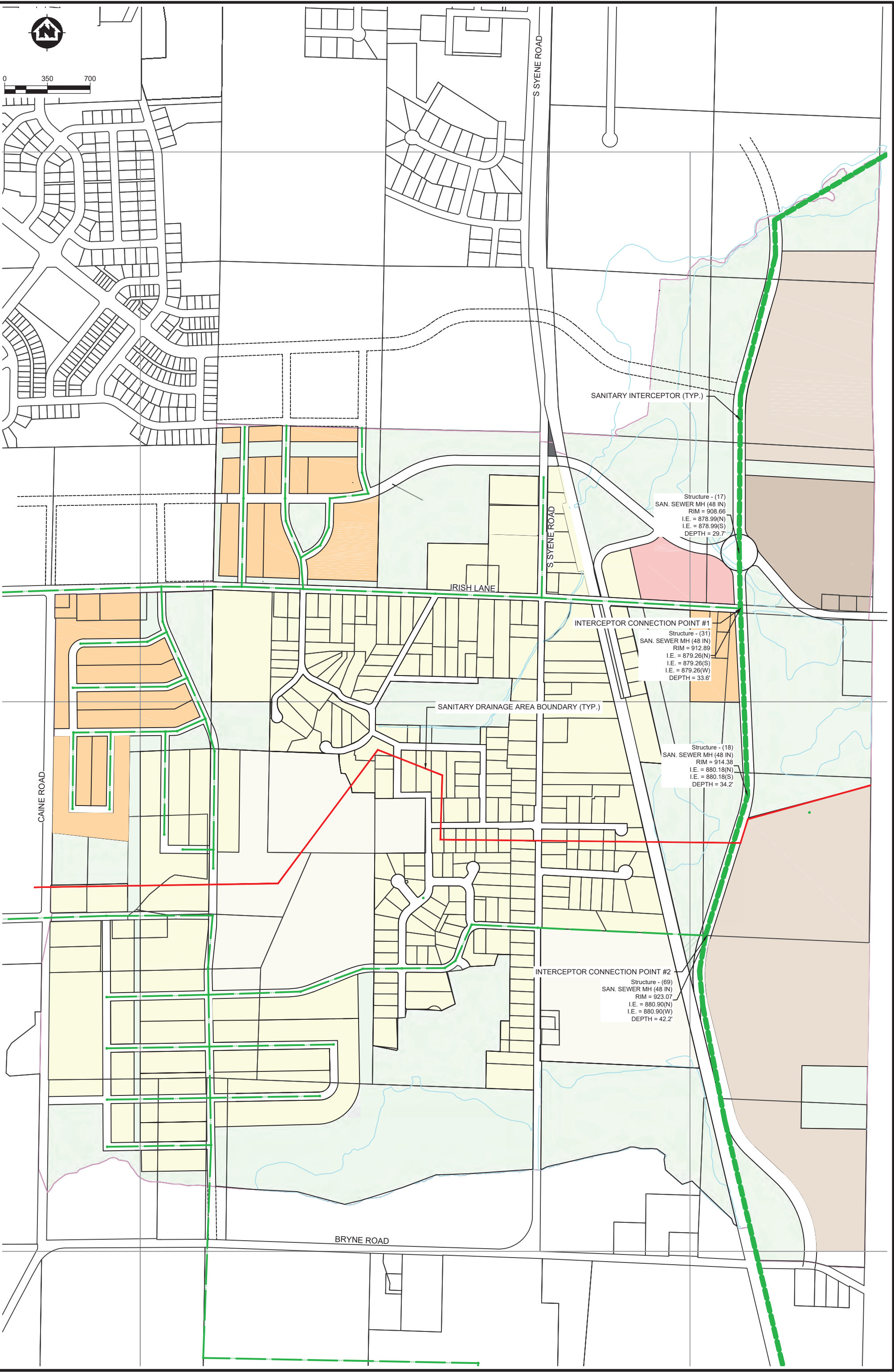
2000 0 2000 4000 Feet



FIGURE NO. 2.02-1
SYENE INTERCEPTOR
TRIBUTARY AREAS
FITCHBURG, WISCONSIN



0 350 700



SANITARY INTERCEPTOR (TYP.)

Structure - (17)
SAN. SEWER MH (48 IN)
RIM = 908.66
I.E. = 878.99(N)
I.E. = 878.99(S)
DEPTH = 29.7'

INTERCEPTOR CONNECTION POINT #1
Structure - (31)
SAN. SEWER MH (48 IN)
RIM = 912.89
I.E. = 879.26(N)
I.E. = 879.26(S)
DEPTH = 33.6'

SANITARY DRAINAGE AREA BOUNDARY (TYP.)

Structure - (18)
SAN. SEWER MH (48 IN)
RIM = 914.38
I.E. = 880.18(N)
I.E. = 880.18(S)
DEPTH = 34.2'

INTERCEPTOR CONNECTION POINT #2
Structure - (69)
SAN. SEWER MH (48 IN)
RIM = 923.07
I.E. = 880.90(N)
I.E. = 880.90(W)
DEPTH = 42.2'

CAINE ROAD

IRISH LANE

S SYENE ROAD

BRYNE ROAD