
To: Greenfield Neighborhood Steering Committee
From: Steve Tremlett
Subject: Meeting Packet Summary
Date: May 27, 2025

Steering Committee,

This memo outlines and highlights the topics we will cover at our upcoming 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 concept and plan recommendations. Please review the draft plan and come with questions.

- 1) **Introduction & Process** – This chapter outlines the project purpose, objectives and process. The engagement feedback is summarized with the intent to maintain a city webpage with raw data from the engagement process.
- 2) **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.
 - a. ***Housing Strategy #1.3 is in direct response to the Established Greenfield Neighborhood Petition.***
 - b. ***Economy Strategy #2.2 is in response to concerns of the flexibility in business park or residential east of the tracks.***
 - c. ***Mobility Strategy #3B.5 added to include adequate lighting to ensure safety of users on streets, multi-use paths and trails.***
 - d. ***Quality of Life Strategy #4.4 added to make intentional multi-modal connections between local and regional park/open space areas, especially developing a path through a proposed Moraine Edge Corridor.***
- 3) **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. ***Non-residential and multifamily developments are encouraged to meet these guidelines.***
 - a. ***Compatibility Guidelines (p.34)*** are included to provide design considerations that will allow for greater compatibility between low- and high-intensity uses (i.e., those with varying building size in mass and/or height, more housing units, etc.).
- 4) **Preferred Concept & Phasing** – The preferred concept was updated per Steering Committee direction at our September meeting (#5) to allow medium-high density residential as an alternative use from business park for lands north of ATC power lines (north of Collector ‘A’ and east of railroad tracks). Design themes were described in greater detail regarding Collectors ‘A’ and ‘B’, residential density concentration, compatibility with existing established Greenfield neighborhood, agrihood and neighborhood mixed use.
 - a. ***A general phasing plan is established based on infrastructure needs to serve future development with the established neighborhood not needed to connect to serve these additional lands, except for properties abutting Irish Lane and Old Indian Trail.***

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- 5) **Stormwater Management** – Chapter 4 summarizes the engineering that has been completed during the process. Appendix C provides supplemental information to Chapter 4. Below summarizes the stormwater requirements, modeling assumptions, and recommendations/improvements.

Requirements

In order to preserve the habitat function in Swan and Murphy Creek, neighborhood-specific design objectives go above and beyond the City’s and State’s standard ordinance criteria.

- 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.
- Predevelopment Conditions: The maximum runoff curve number in such calculations shall be those shown in the table below. Typically, “predevelopment” conditions would be extensive cropland for this neighborhood vs. natural environment (woodland and grasslands). This conceptual plan uses grassland curve numbers to determine pre-development conditions, which results in higher performance standards than cropland.

Table 4.1: Maximum Pre-Development Runoff Curve Numbers

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

- Maintain 100% 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. Standard requirement is 90% of pre-development runoff volumes (vs. this plan requires 100%).
- Retain 80% of Total Suspended Solids post-development compared to no controls.
- Two closed depressions are present on the east side of the neighborhood (see orange boundaries in Figure 4.4 on P.62). New development draining to these two closed depressions are required to meet the same stormwater standards set for the rest of the neighborhood, plus establishing a flood protection elevation in the closed depression equivalent to standing water level that would result from back-to-back 100-year runoff events.

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%

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ROW (Existing)	40%	-	-	-	60%
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Stormwater Recommendations and Improvements

There are 14 recommendations outlined in P63-64 with the following highlights:

- 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.
- A strategic effort could be made to restore the potentially restorable wetlands shown the Waubesa wetlands report (Figure 3.5 on P.41). 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. **Figure 4.1 (on P.60) identifies restorable wetland locations near existing wetlands.**

6) Utilities

Sanitary System

MSA has preliminarily evaluated the sanitary options for the Greenfield Neighborhood Plan based on the Syene Interceptor Tributary Areas Map (Figure 4.5 on P.65). All sizing calculations are based on the draft Neighborhood Preferred Concept. The neighborhood plan was split into north and south sanitary drainage areas based on gravity flow (see red line in Figure 4.6). **Old Indian Trail and Irish Lane will be the two mains that connect to the interceptor; they are essential to are serving different areas of the neighborhood and providing necessary main depths.** *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.*

Tables 4.1-4.4 on P.68-69 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.

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- 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 are used.*
- Off-site areas are included to ensure the proposed infrastructure can accommodate potential development beyond the Greenfield neighborhood if the City's growth management strategies are amended in the future (indicated in Figure 4.7). **However, no service is planned beyond Old Indian Trail or outside of Irish Lane at the time of adoption.** Assumptions to determine housing unit potential in the off-site areas include: 60% as developable at 8 units per acre (which is a conservatively high estimate).

Water System

The average water demand for the proposed development is estimated to be 431,171 - 620,841 gallons per day, as illustrated in **Tables 4.6-4.7**. Accounting for the highest max day/ average day ratio (since 2012) of 2.01 in the east/northeast zone, the estimated peak water demand for the development would be 866,654 - 1,247,890 gallons per day. Approximate pipe sizing per area is as follows:

- 12" water main along Blaney Rd , Irish Ln, and potentially Byrne Road.
- 10" water main along Collector A , Collector B, Syene Road (south end), and within Business Park and Higher Density/Multi-unit Residential Areas (BP/HDR)
- 8" water main for all other Lower Density Residential areas (LDR/MDR).

A well will be needed with likely location south of Irish Lane west of the established neighborhood (see blue circle on Figure 4.8).

7) **Traffic**

Proposed USH 14 Interchange

A new interchange coupled with a new east-west Collector 'A' could absorb some of the traffic on Irish Lane and South Syene Road. It would also complement the potential urban development in the next twenty years, providing better mobility throughout the City and increasing potential for employment development around the connection. This plan recognizes a potential interchange around Irish Lane with a recommendation to further study

New Development Traffic Impacts

Evaluation is based on two major factors, as described below.

- 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 second is the distribution of new traffic by percentage through the neighborhood. Appendix C (pages 36-37) provides a scenario with and without an interchange. To help in understanding these maps, some potential outcomes of the distribution with an interchange include the following:
 - 65% of new trips will use USH 14 with 45% heading north and 20% heading south.
 - The remaining 35% leaving the neighborhood go north on Syene (10%), Irish Lane (15%) and Whalen (10%).
 - 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.

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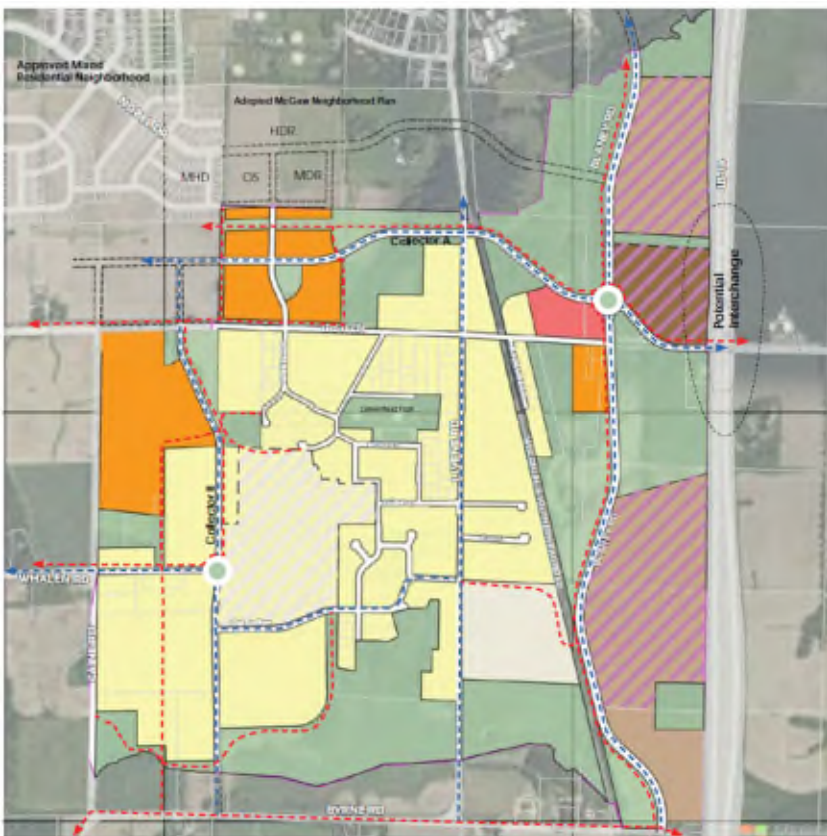
- Collector 'B' that parallels Caine will reduce future trip increases to Caine by up to 20%. About 10% of new traffic will cut over on Old Indian Road to Syene Road.

Recommendations

There are 10 recommendations (P.81) discussing off-street paths (red dashes on the right), bike lanes (blue dashes) and intersection improvements (described below).

Traffic Signal Warrants

Analysis - The operational and capacity analyses were completed using Synchro 12, HCS2023 software, Highway Capacity Manual (HCM) 7th Edition methodologies, and WisDOT headway values, as specified in TEOpS 16-15-20.2.1. This analysis assigns a level of service (LOS) to each movement that refers to the overall quality of flow at an intersection. LOS ranges from very good, LOS "A," to very poor, LOS "F," based on delay measured in seconds per vehicle.



- **Caine Road & Whalen Road:** all approaches are expected to operate at or above LOS B for each of the Scenarios A & B, and with or without the interchange.
- **Irish Lane & Caine Road:** Assuming the north leg will be added at the intersection with the development, all approaches except for the northbound lane are expected to operate at or above LOS C with or without the interchange; the northbound lane operates at LOS F for all scenarios, which is below the improvement threshold (LOS D). At full buildout, an eastbound right turn lane at the intersection of Irish Lane & Caine Road is warranted based on the results of the WisDOT turn lane warrant analysis.
- **Syene Road & Collector 'A':** Traffic signal warrants were not evaluated at this intersection as part of this analysis. Based on the anticipated development volumes at this, it is assumed traffic signal warrants would be met. Only a traffic signal and roundabout alternative will be included as part of the future planning review.