



CITY COUNCIL WORKSHOP AGENDA

May 8, 2024 – 4:00 pm

This is an in-person meeting at Saugatuck City Hall, 102 Butler St, Saugatuck, MI 49453.

The meeting will also be available live, virtually on Zoom.

- 1. Call to Order**
- 2. Roll Call**
- 3. Agenda Changes** *(Additions/Deletions)*
- 4. Guest Speaker**
- 5. Public Comment on Agenda Items Only** *(Limit 3 minutes)*
- 6. Discussion Items:**
 - A.** Airport Property Proposal from Outdoor Discovery Center **Pg.3**
 - B.** Intersection Improvements at Lake/Blue Star for Multi-Modal Trail **Pg.43**
 - C.** Proposal to Provide Architectural & Engineering Design, Bidding & Construction Administration Services for the Mt. Baldhead Restroom Building Replacement **Pg.99**
 - D.** Proposal to Provide Engineering Design and Bidding Services for Mt. Baldhead Observation Platform Replacement **Pg.106**
 - E.** Hardscaping in Right of Way Request – 860 Simonson **Pg.115**
 - F.** Desired Traits in a City Manager **Pg.122**

7. Public Comments *(Limit 3 minutes)*

8. Closed Session:

Motion by _____, supported by _____, to enter into closed session to review and consider the contents of applicants who have requested confidentiality as permitted under the Michigan Open Meetings Act MCL 15.268 Section 8 (f) for the position of Saugatuck City Manager.

Roll call: _____. Motion carried/failed.

Motion by _____, supported by _____, to come out of closed session.

Roll call: _____. Motion carried/failed.

NOTICE:
Join online by visiting:
<https://us02web.zoom.us/j/2698572603>
Join by phone by dialing:
**(312) 626-6799 -or-
(646) 518-9805**
Then enter "Meeting ID":
2698572603
Please send questions or comments regarding meeting agenda items prior to meeting to:
rcummins@saugatuckcity.com
Requests for accommodations or interpretive services must be made 48 hours prior to this meeting. Please contact Saugatuck City Clerk at 269-857-2603 or jwolters@saugatuckcity.com for further information.

- 9. Correspondence:**
A. Jessica Ruthsatz
B. Lavinia Oancea

10. Council Comments

11. Adjourn



City Council Agenda Item Report

FROM: Ryan Cummins, Interim City Manager

MEETING DATE: May 8, 2024

SUBJECT: Outdoor Discovery Center Proposal for Airport Property

DESCRIPTION:

Last year, the Parks and Public Works Committee and City Council prioritized evaluating the “Airport Property” that it owns in Saugatuck Township. This property is approximately 170 acres and is located in the area of 63rd St and 134th Ave. Work last year included:

- A phase 1 environmental assessment.
- An ecological evaluation
- A sustainability evaluation.
- A trail map overview.
- Planning sessions including strengths, opportunities, aspirations and results.
- Evaluating liability and ADA requirements for rustic trails.
- An initial zoning inquiry.

The Outdoor Discovery Center has since provided a proposal to:

- Develop trails and signage.
- Create a trailhead.
- Create a parking area.
- Combat invasives and restore habitat.
- Potentially place a conservation easement over a portion of the property.

The estimated costs for this proposal are \$130,000. It does not include permitting/environmental/utilities. A donor has approached the City with interest in fully funding the proposal.

At the March 20 City Council workshop, Council asked staff to:

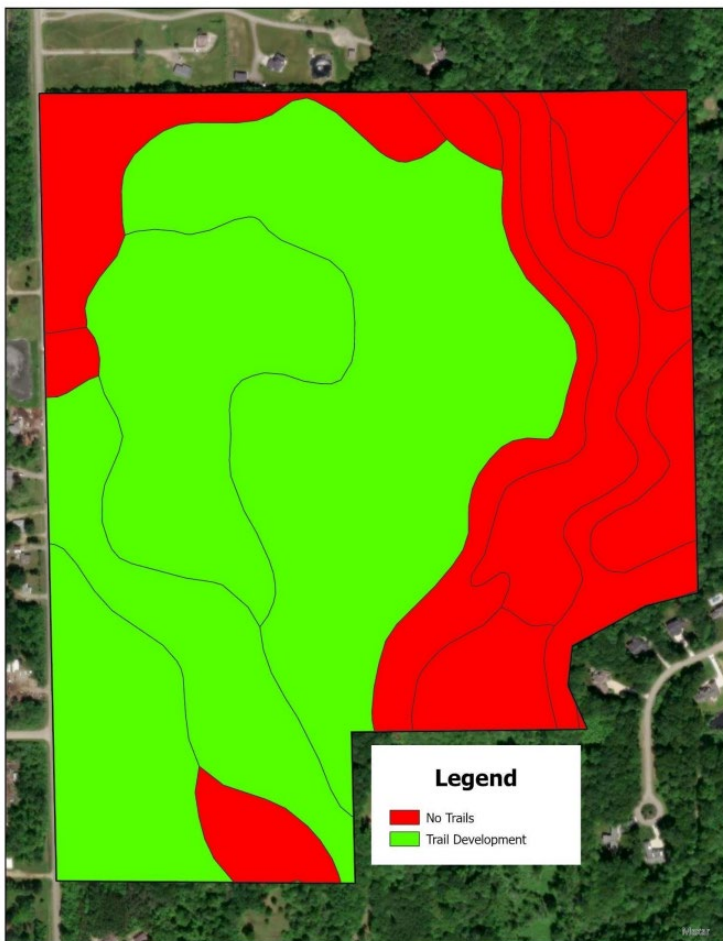
- Meet with the donor to more fully understand expectations they may have.
- Gather further information about conservation easement options.

- Evaluate impacts on DPW operations.

Mayor Stanton and I met with the donors who remain committed to donating to this project. Conservation of portions of the property is important to them and they hope a decision is made soon.

I met with the Outdoor Discovery Center to discuss what portions of the property would be covered under the conservation easement in their proposal. They pointed me to the following map from the ecological evaluation. The areas in red are proposed for a conservation easement. Outdoor Discovery Center described these areas as having steeper grade and would be difficult to develop. The extent of restrictions in the easement would be at the City's discretion.

Appendix C: Recommended Trail Development Areas



The Department of Public Works expects this new trail system will have a similar impact as other trail systems, which require minimal maintenance. There may be times a tree blocks a trail and needs to be cut. Depending on the parking lot material, there may be a need for some ongoing maintenance. DPW is developing plans to better manage brush/leaf material so invasives won't be as prevalent in the future.

The Outdoor Discovery Center will be at the workshop meeting to discuss the proposal in further detail and answer any remaining questions Council may have.

LEGAL REVIEW:

N/A at this time.

SAMPLE MOTION:

Motion to approve the proposal from the Outdoor Discovery Center for the Airport Property contingent upon receiving \$130,000 from donors, and to authorize the Interim City Manager to apply for any necessary Saugatuck Township zoning approvals on behalf of the City, and further authorize the Mayor and City Clerk to sign zoning application forms on behalf of the City as the owner.

City of Saugatuck Former Airport Property



**RESTORING THE LOWER KALAMAZOO
RIVER WATERSHED AND CONNECTING
WITH COMMUNITY**

ABOUT THE ODC NETWORK

The ODC Network is a registered 501(c)(3) non-profit organization that strives to advance outdoor education and conservation in West Michigan. Since 2000, ODC Network has served more than 1.3 million people through hands-on, outdoor learning experiences and conserved thousands of acres of native habitat through restoration and preservation projects. We operate 12 business divisions with the vision to build a better community by connecting people, land and nature.

We are...

- pioneering nature-based education by changing how and where learning happens. The ODC Network provides nature-based education for all ages through early childhood centers, partnerships with local k-12 schools, and community programs.
- protecting natural ecosystems by promoting, preserving, and restoring natural habitats. The ODC Network has conserved thousands of acres of habitat through restoration and preservation projects.
- providing outdoor access through improving our community's connection to the natural world. Our nature preserves are free and open to the public from dawn to dusk 365 days a year.

KALAMAZOO RIVER GREENWAY

The ODC Network was commissioned in 2018 with a grant from the Michigan Department of Environmental Quality to develop a master plan for a Kalamazoo River Greenway. The Kalamazoo River Greenway aims to connect Allegan county communities via a greenway corridor addressing environmental restoration and conservation and create opportunities for recreation and education. The plan is designed to serve as a guide for the development and upkeep of ecological, recreational, and educational assets along the Kalamazoo River in Allegan County.

ODC Network owns two properties within this area. The first is a 65 acre natural area along the Rabbit River in Hamilton. This ecologically diverse property is home to a variety of native flora and fauna as well as unique natural features. The second is a nearly 300 acre property where the Kalamazoo and Rabbit Rivers intersect. The conservation land management services of the ODC Network protect both properties' rich biodiversity and increase their ecological value.



FORMER AIRPORT PROPERTY

The City of Saugatuck former airport property consists of nearly 170 acres located along a significant mosaic of greenspace within the Kalamazoo River corridor. The site offers a diverse range of habitats including mature expanses of Mesic Southern Forest, Floodplain Forest, a biodiverse river corridor, and several vernal pools. Habitats such as these face substantial challenges including development pressures and invasive species growth.

The ODC Network would work with the City of Saugatuck, as well as local governing entities, to determine the best design and timeline for the site. We believe that the community can not only preserve this special greenspace, but also increase its accessibility for residents and visitors. To catalyze this process, the ODC proposes to oversee a multifaceted project, including permanent legal conservation, a defined trail system, a scenic overlook, new trailhead with site map and interpretation, and an established parking area with entrance signage.

PROJECT COMPONENTS



POSSIBLE TRAIL ROUTE



BUDGET

Line Item	Cost
Conservation Easement	\$20,000
Trailhead	\$20,000
Parking Area	\$40,000
Trail Development and Signage	\$15,000
Invasives/Habitat Restoration	\$35,000
Total Cost:	\$130,000
Additional Options	
Security Gate	\$15,000
Overlook	\$30,000
Total Cost: (including optional)	\$175,000

Not included:

- Lighting
- Permitting/Environmental/Utilities

**Individual budget items subject to change*



To learn more, contact us:

david@outdoordiscovery.org

4214 56th Street • Holland, MI • 49423

(616) 393-9453



Ecological Evaluation of “Former Airport Property”



This report was created for:

City of Saugatuck
102 Butler St, Saugatuck, MI 49453

Project Background

The ODC Conservation Services team conducted an ecological evaluation of the City of Saugatuck-owned “Former Airport” property (parcel #'s: 20-002-027-00 and 20-260-002-00). Survey work for the ecological evaluation began on **June 2, 2023** and continued through **July 31, 2023**. The purpose of the ecological evaluation was to assess the current state of ecological health of the existing natural communities and to provide direction for future land-use decisions on the property. The ecological evaluation process involved the identification of distinct natural communities on the site, along with outlining the following criteria for each unit:

- General ecological site description and inventory of natural features
- Description of each natural community including:
 - Landscape context and natural processes
 - General inventory of native plant communities including canopy, understory, and forb/graminoid layer
 - Documentation of high-quality native plant species (coefficient of conservatism rankings between 7-10)
 - Documentation of observed (and potential) wildlife including: state threatened (T), endangered (E), and species of special concern (SC)
 - Documentation of invasive species, pests, and ecological threats
 - Identification of potential ecological restoration and outdoor education opportunities

Executive Summary

The reviewed property consists of 169.1 total acres located along a significant mosaic of greenspace within the Kalamazoo River corridor. The site offers a diverse range of habitats including mature expanses of Mesic Southern Forest, Floodplain Forest, a biodiverse river corridor, several vernal pools, and multiple non-natural communities facing substantial anthropogenic disturbance. Based on our findings detailed below in this report, we recommend any future development and/or recreational amenities should remain on the western half of the property which is of lower ecological quality. The eastern half of the property consists almost entirely of high-quality habitat that should be preserved to the greatest extent possible. Pockets of invasive species should be prioritized for management throughout the entire property in order to prevent the eventual displacement of these high quality plant communities.

Site Description

The property under review is situated directly east of the intersection of 63rd St and 134th Ave in Saugatuck. The property has a long history of anthropogenic disturbance including a brief stint as an airport, a snowmobile club and trail system, as well as a current storage area for DPW lawn waste and other materials. The extensive history of anthropogenic disturbance is most obvious on the western half of the property, where a plethora of invasive and noxious, disturbance-prone species can be found. Despite this concern, the property also harbors several high-quality natural areas as we move east throughout the property including a rich creek corridor, hemlock-dominated slopes leading to the creek, large tracts of mature forest with old growth oaks, multiple vernal pools, and several pockets of high-quality wet woods. Although invasive species are dense on the western half of the property, the presence of this wide range of high-quality habitats warrants a concerted management effort to discourage the spread of invasive species and preserve the integrity of the high-quality natural areas of the property.

Site Information

Property Size:

169.1 acres

Topography:

Substantial elevation changes from upland (680') to lower-lying areas of Silver Creek (600') on the east side of the property

Watershed:

Kalamazoo

Corridor Component:

One of a number of connected recreational areas along Silver Creek

Historical Land Use:

Previously owned and operated as a small airport in the 1920's

Former snowmobile/UTV recreation club for a period of time (trails throughout)

Active storage area for DPW on SW corner of the property

Disturbance Comments:

Frequent anthropogenic disturbance has led to an increase in invasive and noxious species in the DPW storage area, the old airport runway, and in general on the western half of the property

Ecological Community Information

Pre-settlement Communities:

Hemlock-Beech-Sugar Maple Forest, Mixed Hardwood Swamp

Present Communities:

Mesic Southern Forest, Floodplain Forest, Ruderal Pine Forest, Disturbed Wet Prairie

Maturity:

Mature canopy on eastern half of the property with pockets of middle-aged and early successional on the western half

Total Species Recorded:

102 in less disturbed areas

88 in heavily disturbed areas

***NOTE:** FQI recorded in two separate units due to the high prevalence of non-native species in the disturbed areas on the western half of the property

Floristic Quality Index (FQI):

41.4 in less disturbed areas

12.2 in heavily disturbed areas

***General scale:** 1-19 = low quality, 20-35 high quality, 35+ = exceptional

Notable Elements:

16 plants with a coefficient of conservatism (CC) of 7 or higher

Ecological Site Description and Natural Features

1. Topography

The property has notable changes in elevation as we move east through the property. The peak elevation is 680' on the NW portion of the unit, with 600' being the low point of Silver Creek. The creek corridor is prone to frequent flooding events due to the presence of the creek, a high-water table, and notable elevation changes.

2. Hydrology

Silver Creek flows south through the eastern transect of the property meandering through the pockets of floodplain forest. Several ravines and seepage areas dot the slopes leading down to Silver Creek.

3. Present Natural Communities (see Appendix A)

- Mesic Southern Forest
- Floodplain Forest/Hemlock Transitional Zone
- Disturbed & Non-natural Communities:
 - Disturbed Wet Prairie
 - Ruderal Pine Forest
 - Disturbed Storage Lot

4. High Quality Plant Species (*CC = Coefficient of Conservatism)

- Fox grape (*Vitis labrusca*) *CC of 7
- Red trillium (*Trillium erectum*) *CC of 7
- Blackhaw (*Viburnum prunifolium*) *CC of 7
- Spicebush (*Lindera benzoin*) *CC of 7
- Yellow birch (*Betula alleghaniensis*) *CC of 7
- Red baneberry (*Actaea rubra*) *CC of 7
- Spotted wintergreen (*Chimaphila maculata*) *CC of 8
- Plaintain-leaf sedge (*Carex plantaginea*) *CC of 8
- Rue anemone (*Thalictrum thalictroides*) *CC of 8
- American cancer root (*Orobanche uniflora*) *CC of 8
- Flowering dogwood (*Cornus florida*) *CC of 8
- Joe-pye weed (*Eutrochium fistulosum*) *CC of 8
- Lizard's tail (*Saururus cernuus*) *CC of 9
- Tulip tree (*Liriodendron tulipifera*) *CC of 9
- Paw Paw (*Asimina triloba*) *CC of 9
- Toadshade (*Trillium sessile*) *CC of 9
- American chestnut (*Castanea dentata*) *CC of 9

5. Non-native/Invasive Species

- Black locust (*Robinia pseudoacacia*)
- Tree-of-Heaven (*Ailanthus altissima*)
- Multiflora rose (*Rosa multiflora*)
- European privet (*Ligustrum vulgare*)
- Japanese barberry (*Berberis vulgaris*)
- Purple loosestrife (*Lythrum salicaria*)
- Garlic mustard (*Alliaria petiolata*)
- Canada thistle (*Cirsium arvense*)
- Autumn olive (*Elaeagnus umbellata*)
- Spotted knapweed (*Centaurea stoebe*)
- Asian bittersweet (*Celastrus orbiculatus*)
- Japanese knotweed (*Fallopia japonica*)
- Creeping myrtle (*Vinca minor*)
- Honeysuckle (*Lonicera tatarica*)
- Phragmites (*Phragmites australis*)
- Glossy buckthorn (*Frangula alnus*)
- Reed canary grass (*Phalaris arundinacea*)
- Sweet clover (*Melilotus spp.*)
- Dame's rocket (*Hesperis matronalis*)

Description of Natural Communities (see Appendix A for map):

1. Mesic Southern Forest

- **Landscape Context/Natural Features:**

Mesic Southern Forest is a beech-maple dominated community that typically occurs on moraine and glacial outwash areas in close proximity to the Great Lakes. Gap phase dynamics from periodic severe weather events is the main process that promotes canopy regeneration in this system. The mosaic of old growth oaks in conjunction with recent recruitment of primarily younger beech and maple saplings supports this history of small-scale weather related disturbance. A matrix of long-lived, middle-aged, and early successional forest is found throughout this system.

- **Native Plant Community:** Mesic-Southern Forest occupies the majority of the property until the terrace/Hemlock transitional zone of the floodplain forest is reached on the eastern

portion. It is situated along on the upland portions of the slopes west of the creek following the areas of more well-drained soil. The canopy layer is quite diverse here with the dominant species observed being American beech (*Fagus grandifolia*) and sugar maple (*Acer saccharum*). Abundant canopy associates include: yellow poplar (*Liriodendron tulipifera*), bitternut hickory (*Carya cordiformis*), white oak (*Quercus alba*), red oak (*Quercus rubra*), blue beech (*Carpinus caroliniana*), and ironwood (*Ostrya virginiana*). Young saplings of beech, maple, elm, and ironwood trees are common. American-cancer root (*Conopholis americana*), and beech-drops (*Epifagus virginiana*) are native, beneficial, parasitic species that are also quite common. The soil is dense with leaf litter and organic matter which harbors a rich network of fungi as well. The shrub layer consists mainly of witch hazel (*Hamamelis virginiana*), spicebush (*Lindera benzoin*), prickly gooseberry (*Ribes cynosbati*), with a few scatterings of both pawpaw (*Asimina triloba*) and flowering dogwood (*Cornus florida*) on the east side. Virginia creeper (*Parthenocissus quinquefolia*), green briar (*Smilax spp.*), and poison ivy (*Toxicodendron radicans*) make up the majority of woody vine species. The ground/forb layer offers several high-value native species and a variety of spring ephemerals including: squirrel corn (*Dicentra canadensis*), Dutchman's breeches (*D. cucullaria*), spring beauty (*Claytonia virginica*), wild geranium (*Geranium maculatum*), yellow trout lily (*E. americanum*), sharp-lobed hepatica (*Hepatica acutiloba*), May apple (*Podophyllum peltatum*), common trillium (*Trillium grandiflorum*), sessile trillium (*Trillium sessile*), bloodroot (*Sanguinaria canadensis*), and Canada Mayflower (*Maianthemum canadense*). Several sedge species (*Carex albursina*, *C. arctata*, *C. blanda*) and fescue/bluegrasses fill in pockets of the understory during summer months. Baneberries (*Actaea pachypoda* and *A. rubra*), wreath goldenrod (*Solidago caesia*), and several fern species are also common later in the growing season. The problematic invasive species that have infiltrated this community are autumn olive (*Elaeagnus umbellata*), Japanese barberry (*Berberis thunbergii*), multiflora rose (*Rosa multiflora*), garlic mustard (*Alliaria petiolata*), and Asian bittersweet (*Celastrus orbiculatus*).

- **High Quality Plant Species:**

- Blackhaw (*Viburnum prunifolium*) *CC of 7 (state special concern)
- Spicebush (*Lindera benzoin*) *CC of 7
- Red baneberry (*Actaea rubra*) *CC of 7
- Spotted wintergreen (*Chimaphila maculata*) *CC of 8
- Plantain-leaf sedge (*Carex plantaginea*) *CC of 8
- Rue anemone (*Thalictrum thalictroides*) *CC of 8
- American cancer root (*Orobancha uniflora*) *CC of 8
- Flowering dogwood (*Cornus florida*) *CC of 8
- Tulip tree (*Liriodendron tulipifera*) *CC of 9
- Toadshade (*Trillium sessile*) *CC of 9 (state threatened)
- American chestnut (*Castanea dentata*) *CC of 9 (state endangered)

- **Observed and Potential Wildlife Habitat:**

- This high-quality plant community provides habitat for wood thrush, warblers, tanagers, barred owl, pileated woodpecker, hawks, squirrels, chipmunks, rabbits, white-tailed deer, fox, raccoon, opossum, turkey, as well as diverse array of songbirds. Salamanders, frogs, aquatic invertebrates, and other amphibians seek refuge in the scattered vernal pools.
- Habitat is suitable for a variety of potential rare wildlife including:
 - *Accipiter cooperii* (Cooper's hawk, state special concern)
 - *Accipiter gentilis* (northern goshawk, state special concern)
 - *Ambystoma opacum* (marbled salamander, state threatened)
 - *Ambystoma texanum* (small-mouthed salamander, state endangered)
 - *Buteo lineatus* (red-shouldered hawk, state threatened)
 - *Dendroica cerulea* (cerulean warbler, state special concern)
 - *Elaphe o. obsoleta* (black rat snake, state special concern)
 - *Emydoidea blandingii* (Blanding's turtle, state special concern)

- *Microtus pinetorum* (woodland vole, state special concern)
- *Nicrophorus americanus* (American burying beetle, federal/state endangered)
- *Protonotaria citrea* (prothonotary warbler, state special concern)
- *Seiurus motacilla* (Louisiana waterthrush, state special concern)
- *Terrapene c. carolina* (eastern box turtle, state special concern)
- *Wilsonia citrina* (hooded warbler, state special concern)
- **Potential Invasive Species, Pests, Ecological Threats:**
 - Small pockets of invasive species pose the largest threat that could reduce biodiversity if left unchecked.
 - Management of Japanese barberry and Asian bittersweet.
 - Hemlock Woolly Adelgid (HWA) is imminent and should be prepared for treatment.
- **Outdoor Education Opportunities:**
 - Hiking/biking trails – existing infrastructure footprint could be utilized.
 - Pole barn could be retrofit into a welcome area/parking/restrooms/etc. and would be separate from DPW storage area.
 - Bird watching opportunities.
 - Plant identification/interpretive signage throughout.
 - Connection to other nearby trails.
- **Ecological Restoration Opportunities:**
 - Removal of non-native/invasive plant species to help protect the high-quality Mesic Southern Forest and Floodplain Forest on the east side of the property.
 - Especially Asian bittersweet, considering its ability to spread rapidly and to girdle trees causing eventual mortality.



Figure 1: Photo of Mesic Southern Forest community with high-quality ephemeral forb layer consisting of May apple (*Podophyllum peltatum*) and wild geranium (*Geranium maculatum*).

2. Floodplain Forest / Hemlock Transitional Zone

- **Landscape Context/Natural Features:** Floodplain forests are a dynamic interface community that bridge the gap between terrestrial and aquatic systems. The lower zone of the floodplain experiences dynamic interactions of over-the-bank flooding, sediment deposition, streambank erosion, and ice scour in the winter months. As expected with moving water and dynamic fluctuations in water level, the plant communities are quite diverse with variable species composition throughout different levels of inundation. Multi-stemmed trees are common due to this process of bank-scouring, deposition, and erosion. Shade from nearby trees and shrubs helps shade the creek from excessive sun exposure during the summer months which creates pockets of water with unique plant and wildlife components.

Plant Community: The dominant canopy species of the low-lying, creek adjacent zone of this unit are silver maple (*Acer saccharinum*), basswood (*Tilia americana*), box elder (*Acer negundo*), slippery elm (*Ulmus rubra*), and a few standing-dead green ash (*Fraxinus pennsylvanica*). As we continue the transition away from fluvial landforms and reach soil above the influence of seasonal inundation, the species composition begins to shift. Eastern hemlock (*Tsuga canadensis*) trees dominate a majority of the slope/terrace region. Hemlock trees should be closely monitored for the presence of the invasive tree pest Hemlock Woolly Adelgid (HWA). American beech (*Fagus grandifolia*), ironwood (*Carpinus caroliniana*), and sugar maple (*Acer saccharum*) trees become more common as we continue to increase in elevation up the terrace/slope back into Mesic Southern Forest. The shrub layer is scattered and consists mainly of dogwoods (*Cornus* spp.) and spicebush (*Lindera benzoin*). Several high-quality species, including royal fern (*Osmunda regalis*), wood fern (*Dryopteris* spp.), cut grass (*Leersia oryzoides*), wood reedgrass (*Cinna arundinacea*), jewelweed (*Impatiens capensis*), jumpseed (*Persicaria virginiana*), Virginia waterleaf (*Hydrophyllum virginianum*), and white avens (*Geum canadense*) are all common in the forb layer. Moonseed (*Menispermum canadense*), Virginia creeper (*Parthenocissus quinquefolia*), and poison ivy (*Toxicodendron radicans*) are the most abundant woody vines in this community.

- **High Quality Plant Species:**
 - Blackhaw (*Viburnum prunifolium*) *CC of 7 (state special concern)
 - Spicebush (*Lindera benzoin*) *CC of 7
 - Yellow birch (*Betula alleghaniensis*) *CC of 7
 - Joe-pye weed (*Eutrochium fistulosum*) *CC of 8
 - Lizard's tail (*Saururus cernuus*) *CC of 9
 - Toadshade (*Trillium sessile*) *CC of 9 (state threatened)
 - Paw Paw (*Asimina triloba*) *CC of 9
- **Observed and Potential Wildlife:**
 - This community provides important habitat for cavity-nesting birds, canopy-dwelling birds, woodpeckers, and migratory birds. Ducks, owls, herons, egrets, songbirds, hawks, bats, squirrels, chipmunks, rabbits, white-tailed deer, and raccoon are also common. Turtles, invertebrates, frogs, snakes, and other reptiles/amphibians are scattered throughout differing levels of inundation. Various species of creek-dwelling fish occupy pools of deeper water throughout the creek.
 - Habitat is suitable for a variety of potential rare wildlife including:
 - *Accipiter cooperii* (Cooper's hawk, state special concern)
 - *Ambystoma opacum* (marbled salamander, state threatened)
 - *Ambystoma texanum* (small-mouthed salamander, state endangered)
 - *Buteo lineatus* (red-shouldered hawk, state threatened)
 - *Clonophis kirtlandii* (Kirtland's snake, state endangered)
 - *Dendroica cerulea* (cerulean warbler, state special concern)
 - *Dendroica dominica* (yellow-throated warbler, state threatened)
 - *Elaphe o. obsoleta* (black rat snake, state special concern)
 - *Emydoidea blandingii* (Blanding's turtle, state special concern)
 - *Glyptemys insculpta* (wood turtle, state special concern)

- *Myotis sodalis* (Indiana bat, federal/state endangered)
- *Nerodia erythrogaster neglecta* (copperbelly watersnake, federal threatened and state endangered)
- *Protonotaria citrea* (prothonotary warbler, state special concern)
- *Seiurus motacilla* (Louisiana waterthrush, state special concern)
- *Sistrurus c. catenatus* (eastern massasauga, federal candidate species and state special concern)
- *Tachopteryx thoreyi* (grey petaltail, state special concern)
- *Terrapene c. carolina* (eastern box turtle, state special concern)
- *Wilsonia citrina* (hooded warbler, state special concern)
- **Potential Invasive Species, Pests, Ecological Threats:**
 - Creek has potential to carry in unwanted aquatic invasive species including reed canary grass, purple loosestrife, and phragmites.
 - Hemlock Woolly Adelgid (HWA) will cause eventual mortality to Eastern Hemlock trees if left untreated.
- **Outdoor Education and Recreational Opportunities:**
 - Hiking trails to observe creek corridor plant community and topography.
 - Plant identification signage.
 - Bird watching opportunities.
 - Recommend minimalist trails in this area and avoiding bike paths here to limit disturbance and protect high quality plant communities.
- **Ecological Restoration Opportunities:**
 - HWA control to prevent eventual loss of slope-stabilizing Eastern Hemlocks.
 - Prioritization of Asian bittersweet control to prevent mortality of mature trees through girdling and displacement of native plant communities.



Figure 2: Photo of Floodplain Forest community documenting the shift of the understory plant community at the beginning of the Hemlock transition zone.

3. Disturbed Wet Prairie

- **Landscape Context/Natural Features:** The disturbed wet prairie section is a highly disturbed and neglected area that appears to be the remnants of the old runway or possibly the remnants of the large white spruce (*Picea glauca*) and Scotch pine (*Pinus sylvestris*) planting that occurred following the abandoning of the airport. A clay topsoil is covering the area that creates unconventional plant communities; with ruts in the clay being most similar to a wet prairie. The intense microtopography as a result of the rutted clay topsoil has formed a wetland matrix throughout the unit with the majority of the wetland pockets along the treeline to the northeast. Tree species exhibit stunted growth due to the seasonal inundation from the hard clay topsoil.
- **Plant Community:** The plant community throughout the disturbed wet prairie is highly disturbed and impacted by dense populations of invasive species. Native tree species throughout the area are primarily early successional trees including; boxelder (*Acer negundo*), green ash (*Fraxinus pennsylvanica*), and cottonwood (*Populus deltoids*). Encroaching populations of autumn olive (*Elaeagnus umbellata*), red pine (*Pinus resinosa*), and Scotch pine (*Pinus sylvestris*) are a non-native liability on the surrounding landscape and should be controlled if a native, high-quality habitat is the primary goal. Woody vegetation is much more abundant at higher elevations along the southwest edge of the wet prairie plant community. As you go to the northeast and elevation starts to drop, the hard packed clay soil holds onto more water which has prevented a lot of the woody invasive plants from encroaching too much. The forbs throughout this area mirror the same pattern as the woody vegetation, with drier species like black-eyed susan (*Rudbeckia hirta*), blackberry (*Rubus spp.*), and meadow garlic (*Allium canadense*) growing along the southwest line, and wetter species like bulrush (*Scirpoides holoschoenus*), phragmites (*Phragmites australis*), and meadowsweet (*Filipendula ulmaria*) growing at the lower elevations. This wetland spectrum is further complicated by the microtopography throughout the area, which allows wetland species to be located at the higher elevations where pockets of clay allow for water retention.
- **High Quality Plant Species:**
 - Fox grape (*Vitis labrusca*) *CC of 7
 - Joe-pye weed (*Eutrochium fistulosum*) *CC of 8
- **Observed and Potential Wildlife:**
 - Suitable habitat for woodpeckers, hawks, squirrels, chipmunks, rabbits, white-tailed deer, raccoon, opossum, turkey, and songbirds. Turtles, snakes and other amphibians are found throughout the scattered wet pockets.
 - Habitat is suitable for a variety of potential rare wildlife including:
 - *Acris crepitans blanchardi* (Blanchard's cricket frog, state special concern)
 - *Ambystoma texanum* (smallmouth salamander, state endangered)
 - *Ammodramus savannarum* (grasshopper sparrow, state special concern)
 - *Asio flammeus* (short-eared owl, state endangered)
 - *Botaurus lentiginosus* (American bittern, state special concern)
 - *Circus cyaneus* (northern harrier, state special concern)
 - *Clemmys guttata* (spotted turtle, state threatened)
 - *Clonophis kirtlandii* (Kirtland's snake, state endangered)
 - *Dorydiella kansana* (leafhopper, state special concern)
 - *Emydoidea blandingii* (Blanding's turtle, state special concern)
 - *Flexamia reflexus* (leafhopper, state special concern)
 - *Meropleon ambifusca* (Newman's brocade, state special concern)
 - *Neoconocephalus lyristes* (bog conehead, state special concern)
 - *Neoconocephalus retusus* (conehead grasshopper, state special concern)
 - *Neonympha m. mitchellii* (Mitchell's satyr, federal/state endangered)
 - *Orchelimum concinnum* (red-faced meadow katydid, state special concern)
 - *Orphulella pelidna* (green desert grasshopper, state special concern)
 - *Papaipema cerina* (golden borer, state special concern)

- *Papaipema maritima* (maritime sunflower borer, state special concern)
- *Papaipema speciosissima* (regal fern borer, state special concern)
- *Paroxya hoosieri* (Hoosier locust, state special concern)
- *Phalaropus tricolor* (Wilson's phalarope, state special concern)
- *Sistrurus c. catenatus* (eastern massasauga, federal candidate species and state special concern)
- *Spartiniphaga inops* (spartina moth, state special concern)
- *Spiza americana* (dickcissel, state special concern)
- *Tyto alba* (barn owl, state endangered)
- **Potential Invasive Species, Pests, Ecological Threats:**
 - Proximity to large populations of autumn olive (*Elaeagnus umbellata*) will continue to encroach into the community over time.
 - Absence of fire has allowed other non-native species like phragmites (*Phragmites australis*), sweet clover (*Melilotus officinalis*), purple loosestrife (*Lythrum salicaria*), and bull thistle (*Cirsium vulgare*) to outcompete native vegetation in pockets.
- **Outdoor Education Opportunities**
 - Wet prairies are incredibly educational because of the dynamic water relationships that exist seasonally within the plant community.
 - A trail should be planned on the outskirts of the community to avoid waterlogged clay soil.
- **Ecological Restoration Opportunities:**
 - Invasive species management should be the top priority in this plant community. Removal of early-successional trees and invasive shrubs will allow for better light penetration and will drastically improve the biodiversity throughout the unit.
 - Reintroduction of fire would also have a massive impact on plant community diversity by removing species that are not adapted to fire like blackberry (*Rubus spp.*), bentgrass (*Agrostis spp.*), phragmites (*Phragmites australis*), and clovers (*Trifolium spp.*).



Figure 3: Invasive phragmites (*Phragmites Australis*) pictured invading pockets of disturbed wet prairie.

4. Ruderal Pine Forest

- **Landscape Context/Natural Features:** Monoculture stands of purposefully-planted pine trees are scattered throughout the property and appear to coincide with historic deforestation and replanting in the 1940's. The logging companies would usually plant a monoculture of a fast-growing timber species. In this case, red pines were the majority planted. While a naturally spaced stand of red pines can survive for ~400 years, a reforestation with spacing maximized for commercial lumber production will generally fail after ~80 years. Due to the age of the stand, the red pines are starting to fail. Topographically the areas are uniformly flat with sandy soil. Water retention in these areas is non-existent.
- **Plant Community:** The canopy is dominated by red pines that were obviously planted as part of a large-scale reforestation project. The size of the trees would suggest the trees were planted ~80 years ago. This was a common practice in the mid 20th century following large-scale logging projects. A major issue with tightly-spaced red pine stands is their prevention of sunlight from reaching the understory, which leads to poor replacement of trees. The understory is non-existent in the center of these red pine stands. Pre-deforestation, this community would have mimicked the surrounding Mesic Southern plant community, as is evident by the forbs observed within pockets of dappled sunlight. Virginia creeper, wild geranium, Canada Mayflower, spicebush and wood fern are found sporadically throughout this unit. There are large populations of Asian bittersweet along areas with historic disturbance (remnant snowmobile trails). This bittersweet is quickly colonizing the area, girdling red pines, and eventually pulling them down.
- **Observed and Potential Wildlife:**
 - Suitable habitat for spillover of typical inhabitants of the surrounding Mesic Southern Forest including: songbirds, owls, woodpeckers, hawks, squirrels, chipmunks, rabbits, white-tailed deer, raccoon, opossum, turkey, and snakes
 - Habitat is suitable for a variety of potential rare wildlife including:
 - *Accipiter gentilis* (northern goshawk, state special concern)
 - *Falco columbarius* (merlin, state threatened)
 - *Haliaeetus leucocephalus* (bald eagle, state threatened)
 - *Pandion haliaetus* (osprey, state threatened)
 - *Picoides arcticus* (black-backed woodpecker, state special concern)
- **Potential Invasive Species, Pests, Ecological Threats:**
 - Asian bittersweet is a problem as it continues to shade out and smother the small pockets of native species.
 - As Asian bittersweet continues to pull down the dying red pines, exposing the forest floor to sunlight, there is potential for invasive shrub species like honeysuckle, Japanese barberry, autumn olive, and common buckthorn to establish quickly in the vacant space.
 - There is minimal hardwood replacement occurring within the community which will create an ecological void as the red pines continue to die off.
- **Outdoor Education Opportunities**
 - In its current state, there are minimal educational opportunities through this community.
 - Trails connecting access points directly to higher quality areas could potentially run through this area.
 - Special care should be taken along these trails to prevent the spread of invasive species (mainly bittersweet) via the trail system.
- **Ecological Restoration Opportunities:**
 - Focus on invasive species along the trail system to prevent spread - containment should be the first priority.
 - Strategic thinning of the red pines would allow for large-scale reforestation to occur in this unit, returning it to its pre-settlement community type.
 - Broad-scale invasive species management.



Figure 4: Photo of Ruderal Pine Forest documenting red pine monoculture with minimal understory.

5. Disturbed Storage Lot

- **Landscape Context/Natural Features:** The storage lot area is a highly disturbed community that experiences consistent disturbance and non-native plant material inputs. Decades of municipal yard waste and fill dirt have been placed into an area that likely mirrored the surrounding mesic southern forest. This has created an inhospitable soil structure littered with gravel, large rocks, and partially decayed woody plant material. The soil appears to be consisting of heavy clay which is not consistent with the surrounding landscape or soil maps (which show a much sandier parent material.) The area also appears to be growing outwards towards pockets of wetlands to the east; likely a result of clearing the yard to accommodate more waste material at the end of the growing season.
- **Plant Community:** The plant community found within the storage lot is highly disturbed; consisting of 95% non-native and invasive plants. This is likely the result of dumping yard waste from throughout the city in one common place in conjunction with a high disturbance regime. The usual invasives are found throughout the unit including thistles (*Cirsium spp.*), reed canary grass (*Phalaris arundinacea*), phragmites (*Phragmites australis*), dame's rocket (*Hesperis matronalis*) and yellow rocket (*Barbarea spp.*). There also a few exotic escaped landscaping plants including a mature mimosa tree (*Albizia julibrissin*), chamomile (*Anthemis arvensis*), and bermuda-grass (*Cynodon dactylon*); which are typically found in much warmer climates to the south. Several large colonies of Japanese knotweed (*Fallopia japonica*) are scattered throughout as well which have the potential to spread even further with soil disturbance and/or mowing. The presence of these species is more concerning and would require a faster response than the more common invasive plants to keep with the state strategy of early detection and rapid response. *No high quality plants are found within this unit.*

- **Observed and Potential Wildlife:**
 - Minimal opportunities for wildlife habitat with the exception of the wetland along the eastern edge of the lot as a potential nesting habitat for wood ducks if disturbance and human impact slows dramatically
- **Potential Invasive Species, Pests, Ecological Threats:**
 - Absinthium (*Artemisia absinthium*)
 - Japanese Knotweed (*Fallopia japonica*)
 - Common Mullein (*Verbascum Thapsus*)
 - Moth Mullein (*Verbascum blattaria*)
 - Reed Canary Grass (*Phalaris arundinacea*)
 - Horse Nettle (*Solanum carolinense*)
 - Bermudagrass (*Cynodon dactylon*)
 - Birds Foot Trefoil (*Lotus corniculatus*)
 - Yellow Nutsedge (*Cyperus esculentus*)
 - Canada Thistle (*Cirsium arvense*)
 - Sow Thistle (*Sonchus arvensis*)
 - Bull Thistle (*Cirsium vulgare*)
 - Canada Goldenrod (*Solidago Canadensis*)
 - Velvetleaf (*Abutilon theophrasti*)
 - Phragmites (*Phragmites australis*)
 - Sweet Clover (Yellow) (*Melilotus officinalis*)
 - Sweet Clover (White) (*Melilotus albus*)
 - Miscanthus Grass (*Miscanthus sinensis*)
 - White Mulberry (*Morus alba*)
 - Johnsongrass (*Sorghum halepense*)
 - Bindweed (*Convolvulus arvensis*)
 - Yellow Foxtail (*Setaria pumila*)
 - Jimsonweed (*Datura stramonium*)
 - Yellow Rocket (*Barbarea vulgaris*)
 - Mimosa (*Albizia julibrissin*)
 - Black Locust (*Robinia pseudoacacia*)
 - Dames Rocket (*Hesperis matronalis*)
 - Myrtle (*Vinca minor*)
 - Poison Hemlock (*Conium maculatum*)
 - Asian Bittersweet (*Celastrus orbiculatus*)
- **Outdoor Education Opportunities**
 - Outdoor education is not recommended in this area in its current state due to the presence of several extremely noxious and poisonous plants. These plants include poison hemlock, jimsonweed, poison ivy, and absinthium.
- **Ecological Restoration Opportunities**
 - The most obvious path forward for this unit is to get control of the invasive species by focusing on poisonous and exotic plants first through intensive chemical application
 - The secondary focus would be on perennial invasive plants including Canada thistle, Phragmites, Canada goldenrod, and Asian bittersweet.
 - If disturbance and further plant inputs are minimized there should be a reduction in the annual and biennial non-native plants.
 - Yard waste could be hot composted in a concentrated area to reduce seed spread into surrounding natural communities. This would require a more formal “pad” for yard waste to be deposited and turned to ensure sufficient temperatures to kill seed.
 - Effort should be made to prevent further spread of the yard towards the east to reduce the likelihood of wetland destruction.

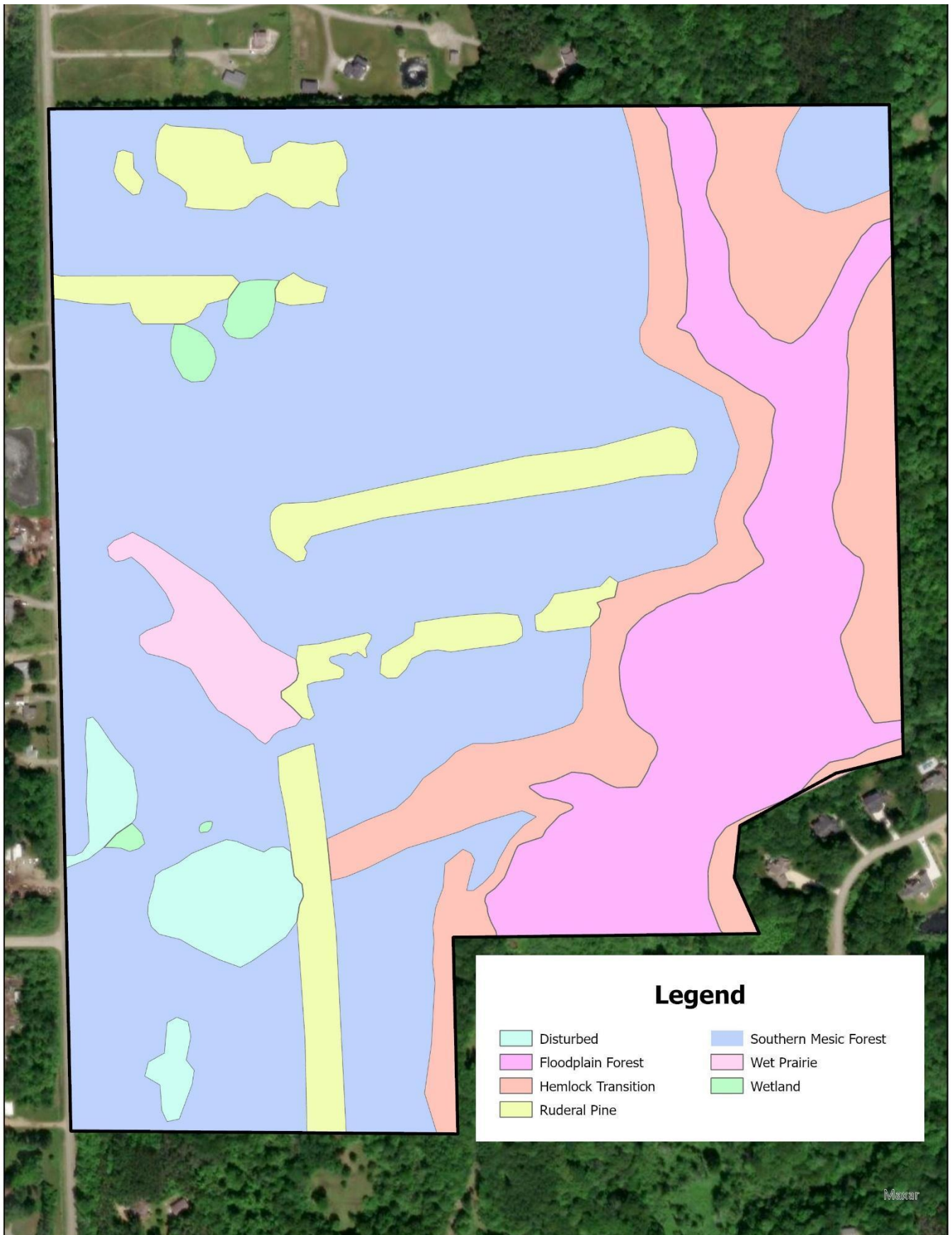


Figure 5: *Photo of disturbed storage yard showing frequent soil disturbance and predominantly invasive and noxious plant species.*

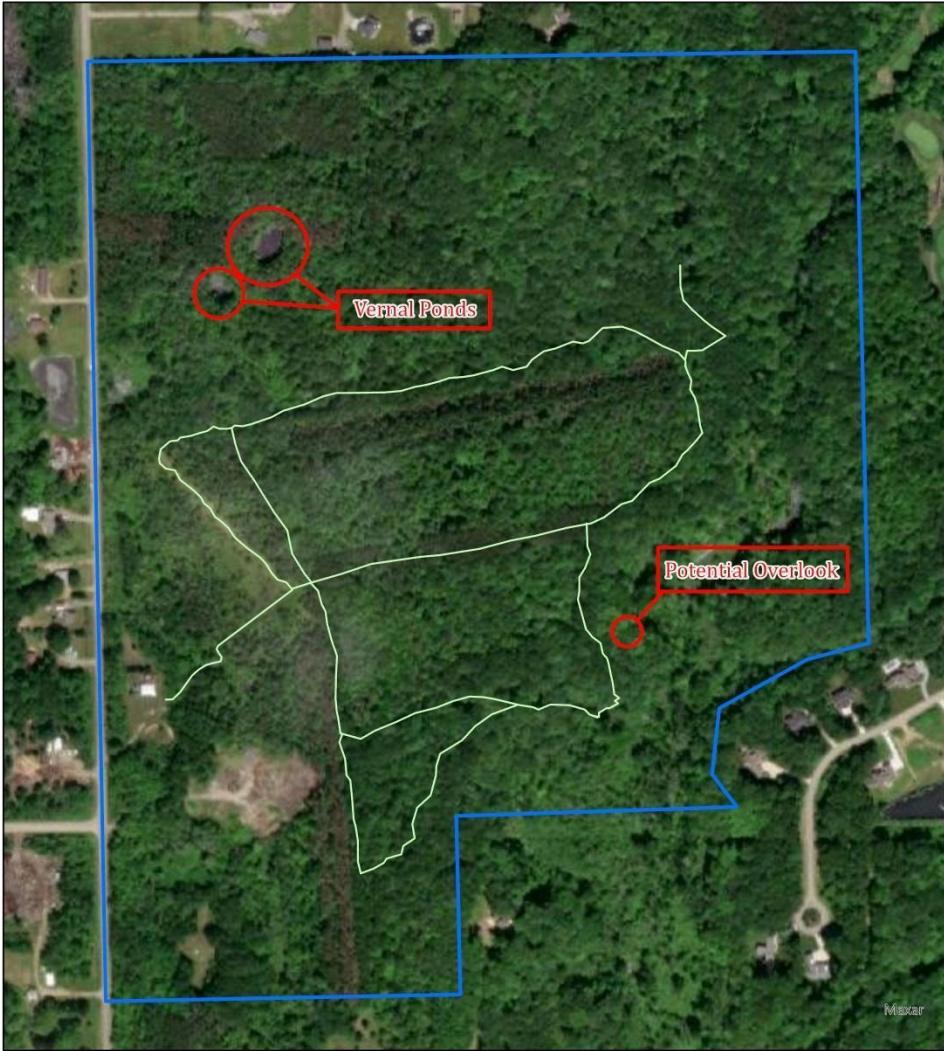



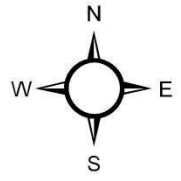
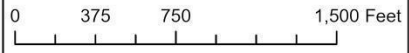
Figure 6: *Photo of large invasive Japanese Knotweed (*Fallopia japonica*) colony. Japanese knotweed has already gained a massive foothold in this area and should be prioritized for management in the near future due to its aggressive nature of growth and ability to quickly outcompete native plant communities.*

Appendix A: Map of Natural Communities

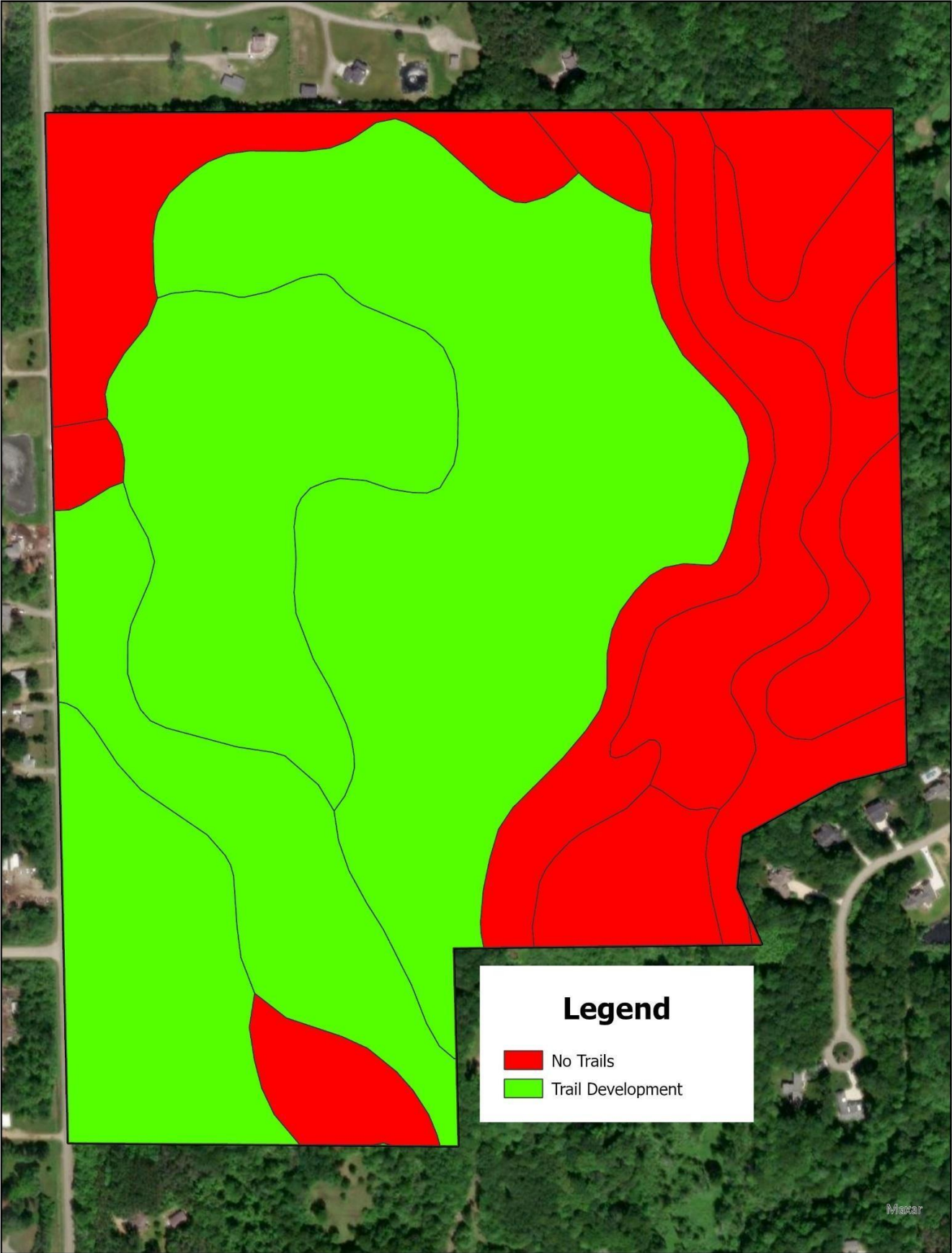


Appendix B: Existing Trail Footprint



63rd Street Former Airport Trail Map
ODC Conservation Services Map Created by: Ben Heerspink Map created on: 3/20/23 Trail marked with GPS on: 3/20/23



Property was assessed on March 20, 2023 by ODC Conservation Staff. Remnant trails were mapped utilizing GPS points. The trail as it stands is 2.5 miles long with many opportunities to expand by blazing new trails along the northernmost trail expanding north towards a seasonal pond.

Appendix C: Recommended Trail Development Areas



Appendix D: Plant Inventory & Floristic Quality Index Results – Natural Communities (Eastern half):

Former Airport Natural Area								
Practitioner:	ODC Network							
Conservation-Based Metrics:								
Total Mean C:	4.1	Species Richness:						
Native Mean C:	4.7	Total Species:		102				
Total FQI:	41.4	Native Species:		89 87.30%				
Native FQI:	44.3	Non-native Species:		13 12.70%				
Adjusted FQI:	43.9	Species Wetness:						
% C value 0:	13.7	Mean Wetness:		1.4				
% C value 1-3:	24.5	Native Mean Wetness:		1.2				
% C value 4-6:	45.1							
% C value 7-10:	16.7							
Native Tree Mean C:	4.9							
Native Shrub Mean C:	5.7							
Native Herbaceous Mean C:	4.5							
Physiognomy Metrics:								
Tree:	25	24.50%		Annual:		3 2.90%		
Shrub:	10	9.80%		Perennial:		94 92.20%		
Vine:	9	8.80%		Biennial:		5 4.90%		
Forb:	46	45.10%		Native Annual:		3 2.90%		
Grass:	4	3.90%		Native Perennial:		85 83.30%		
Sedge:	4	3.90%		Native Biennial:		1 1%		
Rush:	0	0%						
Fern:	4	3.90%						
Bryophyte:	0	0%						
Species:								
Scientific Name	Family	Acronym	Native?	C	W	Physiognomy	Duration	Common Name
Acer platanoides	Sapindaceae	ACEPLA	non-native	0	5	tree	perennial	norway maple
Acer rubrum	Sapindaceae	ACERUB	native	1	0	tree	perennial	red maple
Acer saccharinum	Sapindaceae	ACESAI	native	2	-3	tree	perennial	silver maple
Acer saccharum	Sapindaceae	ACESAU	native	5	3	tree	perennial	sugar maple
Actaea rubra	Ranunculaceae	ACTRUB	native	7	3	forb	perennial	red baneberry
Adlumia fungosa	Papaveraceae	ADLFUN	native	4	5	vine	biennial	climbing fumitory
Agrimonia parviflora	Rosaceae	AGRPAR	native	4	0	forb	perennial	swamp agrimony
Alisma subcordatum; a. plantago-aquatica	Alismataceae	ALISUB	native	1	-5	forb	perennial	southern water-plantain
Alliaria petiolata	Brassicaceae	ALLPET	non-native	0	3	forb	biennial	garlic mustard
Amphicarpaea bracteata	Fabaceae	AMPBRA	native	5	0	vine	annual	hog-peanut
Anemone virginiana	Ranunculaceae	ANEVIR	native	3	3	forb	perennial	thimbleweed
Apocynum androsaemifolium	Apocynaceae	APOAND	native	3	5	forb	perennial	spreading dogbane
Arctium minus	Asteraceae	ARCMIN	non-native	0	3	forb	biennial	common burdock
Arisaema triphyllum	Araceae	ARITRI	native	5	0	forb	perennial	jack-in-the-pulpit
Asimina triloba	Annonaceae	ASITRI	native	9	0	tree	perennial	pawpaw
Atropa belladonna	Solanaceae	ATRBEL	non-native	0	5	forb	perennial	deadly nightshade
Berberis thunbergii	Berberidaceae	BERTHU	non-native	0	3	shrub	perennial	japanese barberry
Betula alleghaniensis	Betulaceae	BETALL	native	7	0	tree	perennial	yellow birch
Betula papyrifera	Betulaceae	BETPAP	native	2	3	tree	perennial	paper birch
Carex intumescens	Cyperaceae	CXINTU	native	3	-3	sedge	perennial	sedge
Carex pallescens	Cyperaceae	CXPALL	native	5	0	sedge	perennial	pale sedge
Carex plantaginea	Cyperaceae	CXPLAN	native	8	5	sedge	perennial	sedge
Carex radiata; c. rosea	Cyperaceae	CXRADI	native	2	0	sedge	perennial	straight-styled wood sedge
Carya glabra	Juglandaceae	CARGLA	native	5	3	tree	perennial	hickory
Carya ovata	Juglandaceae	CAROVA	native	5	3	tree	perennial	shagbark hickory
Castanea dentata	Fagaceae	CASDEN	native	9	5	tree	perennial	american chestnut
Celastrus orbiculatus	Celastraceae	CELORB	non-native	0	5	vine	perennial	oriental bittersweet
Centaurea stoebe; c. maculosa	Asteraceae	CENSTO	non-native	0	5	forb	biennial	spotted knapweed
Chimaphila maculata	Ericaceae	CHIMAC	native	8	5	shrub	perennial	spotted wintergreen
Circaea canadensis; c. lutetiana	Onagraceae	CIRCAN	native	2	3	forb	perennial	enchanters-nightshade
Conium maculatum	Apiaceae	CONMAC	non-native	0	-3	forb	biennial	poison-hemlock
Cornus florida	Cornaceae	CORFLO	native	8	3	tree	perennial	flowering dogwood
Dichanthelium clandestinum; panicum c.	Poaceae	DICCLA	native	3	-3	grass	perennial	panic grass
Diphasiastrum complanatum; lycopodium c.	Lycopodiaceae	DIPCOM	native	5	3	fern	perennial	ground-cedar
Dryopteris intermedia	Dryopteridaceae	DRYINT	native	5	0	fern	perennial	evergreen woodfern
Elaeagnus umbellata	Elaeagnaceae	ELAUMB	non-native	0	3	shrub	perennial	autumn-olive
Elymus hystrix; hystrix patula	Poaceae	ELYHYS	native	5	3	grass	perennial	bottlebrush grass
Elymbia macrophylla; aster m.	Asteraceae	ELURMAC	native	4	5	forb	perennial	big-leaved aster
Eutrochium fistulosum; eupatorium f.	Asteraceae	EUTFIS	native	8	-3	forb	perennial	hollow-stemmed joe-pye-weed
Eutrochium maculatum; eupatorium m.	Asteraceae	EUTMAC	native	4	-5	forb	perennial	joe-pye-weed
Fagus grandifolia	Fagaceae	FAGGRA	native	6	3	tree	perennial	american beech
Fraxinus americana	Oleaceae	FRAAME	native	5	3	tree	perennial	white ash
Fraxinus pennsylvanica	Oleaceae	FRAPEN	native	2	-3	tree	perennial	red ash
Galium circaezans	Rubiaceae	GALCIR	native	4	3	forb	perennial	white wild licorice
Geranium maculatum	Geraniaceae	GERMAC	native	4	3	forb	perennial	wild geranium
Geum canadense	Rosaceae	GEUCAN	native	1	0	forb	perennial	white avens
Geum virginianum	Rosaceae	GEUVIR	native	6	3	forb	perennial	pale avens
Hamamelis virginiana	Hamamelidaceae	HAMVIR	native	5	3	shrub	perennial	witch-hazel
Laportea canadensis	Urticaceae	LAPCAN	native	4	-3	forb	perennial	wood nettle
Leersia oryzoides	Poaceae	LEECOR	native	3	-5	grass	perennial	cut grass
Ligustrum vulgare	Oleaceae	LIGVUL	non-native	0	3	shrub	perennial	common privet
Lindera benzoin	Lauraceae	LINBEN	native	7	-3	shrub	perennial	spicebush
Liriodendron tulipifera	Magnoliaceae	LIRTUL	native	9	3	tree	perennial	tulip tree
Maianthemum canadense	Convallariaceae	MAICAN	native	4	3	forb	perennial	canada mayflower
Maianthemum racemosum; smilacina r.	Convallariaceae	MAIRAC	native	5	3	forb	perennial	false spikenard
Menispermum canadense	Menispermaceae	MENCAE	native	5	0	vine	perennial	moonseed
Mimulus ringens	Phrymaceae	MIMRIN	native	5	-5	forb	perennial	monkey-flower
Mitchella repens	Rubiaceae	MITREP	native	5	3	forb	perennial	partridge-berry
Monotropa uniflora	Ericaceae	MONOUN	native	5	3	forb	perennial	indian-pipe
Onoclea sensibilis	Onocleaceae	ONOSEN	native	2	-3	fern	perennial	sensitive fern
Orobancha uniflora	Orobanchaceae	OROUNI	native	8	5	forb	perennial	cancer root
Osmorhiza berteroi; o. chilensis	Apiaceae	OSMBER	native	5	3	forb	perennial	sweet-cicely
Parthenocissus quinquefolia	Vitaceae	PARQUI	native	5	3	vine	perennial	virginia creeper
Persicaria punctata; polygonum p.	Polygonaceae	PERPUN	native	5	-5	forb	annual	smartweed
Persicaria virginiana; polygonum v.	Polygonaceae	PERVIR	native	4	0	forb	perennial	jumpseed
Phalaris arundinacea	Poaceae	PHAARU	native	0	-3	grass	perennial	reed canary grass

<i>Phryma leptostachya</i>	Phrymaceae	PHRLEP	native	4	3	forb	perennial	lopseed
<i>Phytolacca americana</i>	Phytolaccaceae	PHYAME	native	2	3	forb	perennial	pokeweed
<i>Pilea pumila</i>	Urticaceae	PILPUM	native	5	-3	forb	annual	clearweed
<i>Pinus resinosa</i>	Pinaceae	PINRES	native	6	3	tree	perennial	red pine
<i>Pinus strobus</i>	Pinaceae	PINSTR	native	3	3	tree	perennial	white pine
<i>Podophyllum peltatum</i>	Berberidaceae	PODPEL	native	3	3	forb	perennial	may-apple
<i>Polystichum acrostichoides</i>	Dryopteridaceae	POLACR	native	6	3	fern	perennial	christmas fern
<i>Prunus serotina</i>	Rosaceae	PRUSER	native	2	3	tree	perennial	wild black cherry
<i>Quercus alba</i>	Fagaceae	QUEALB	native	5	3	tree	perennial	white oak
<i>Quercus rubra</i>	Fagaceae	QUERUB	native	5	3	tree	perennial	red oak
<i>Quercus velutina</i>	Fagaceae	QUEVEL	native	6	5	tree	perennial	black oak
<i>Rosa multiflora</i>	Rosaceae	ROSMUL	non-native	0	3	shrub	perennial	multiflora rose
<i>Rubus allegheniensis</i>	Rosaceae	RUBALL	native	1	3	shrub	perennial	common blackberry
<i>Saponaria officinalis</i>	Caryophyllaceae	SAPOFF	non-native	0	3	forb	perennial	bouncing bet
<i>Sassafras albidum</i>	Lauraceae	SASALB	native	5	3	tree	perennial	sassafras
<i>Saururus cernuus</i>	Saururaceae	SAUCER	native	9	-5	forb	perennial	lizards-tail
<i>Smilax rotundifolia</i>	Smilacaceae	SMIROT	native	6	0	vine	perennial	common greenbrier
<i>Solanum dulcamara</i>	Solanaceae	SOLDUL	non-native	0	0	vine	perennial	bittersweet nightshade
<i>Solidago canadensis</i>	Asteraceae	SOLCAN	native	1	3	forb	perennial	canada goldenrod
<i>Solidago flexicaulis</i>	Asteraceae	SOLFLE	native	6	3	forb	perennial	zigzag goldenrod
<i>Solidago gigantea</i>	Asteraceae	SOLGIG	native	3	-3	forb	perennial	late goldenrod
<i>Solidago rugosa</i>	Asteraceae	SOLRUG	native	3	0	forb	perennial	rough-leaved goldenrod
<i>Symplocarpus foetidus</i>	Araceae	SYMFOE	native	6	-5	forb	perennial	skunk-cabbage
<i>Thalictrum thalictroides; anemone l.</i>	Ranunculaceae	THATHA	native	8	3	forb	perennial	rue-anemone
<i>Tilia americana</i>	Malvaceae	TILAME	native	5	3	tree	perennial	basswood
<i>Toxicodendron radicans</i>	Anacardiaceae	TOXRAD	native	2	0	vine	perennial	poison-ivy
<i>Trientalis borealis</i>	Myrsinaceae	TRIBOR	native	5	0	forb	perennial	star-flower
<i>Trillium erectum</i>	Trilliaceae	TRIERE	native	7	3	forb	perennial	stinking benjamin; red trillium
<i>Trillium grandiflorum</i>	Trilliaceae	TRIGRA	native	5	3	forb	perennial	common trillium
<i>Trillium sessile</i>	Trilliaceae	TRISES	native	9	3	forb	perennial	toadshade
<i>Tsuga canadensis</i>	Pinaceae	TSUCAN	native	5	3	tree	perennial	hemlock
<i>Ulmus americana</i>	Ulmaceae	ULMAME	native	1	-3	tree	perennial	american elm
<i>Viburnum acerifolium</i>	Adoxaceae	VIBACE	native	6	5	shrub	perennial	maple-leaved viburnum
<i>Viburnum prunifolium</i>	Adoxaceae	VIBPRU	native	7	3	shrub	perennial	black-haw
<i>Viola sororia</i>	Violaceae	VIOSOR	native	1	0	forb	perennial	common blue violet
<i>Vitis labrusca</i>	Vitaceae	VITLAB	native	7	3	vine	perennial	fox grape

Disturbed Communities (Western half of the property):

Disturbed Former Airport								
Practitioner:	ODC Network							
Conservation-Based Metrics:			Species Richness:					
Total Mean C:	1.3	Total Species:	88					
Native Mean C:	2.8	Native Species:	39	44.30%				
Total FQI:	12.2	Non-native Species:	49	55.70%				
Native FQI:	17.5	Species Wetness:						
Adjusted FQI:	18.6	Mean Wetness:	2.2					
% C value 0:	60.2	Native Mean Wetness:	1					
% C value 1-3:	23.9							
% C value 4-6:	15.9							
% C value 7-10:	0							
Native Tree Mean C:	3.7							
Native Shrub Mean C:	3							
Native Herbaceous Mean C:	2.4							
Physiognomy Metrics:			Duration Metrics:					
Tree:	18	20.50%	Annual:	9	10.20%			
Shrub:	8	9.10%	Perennial:	71	80.70%			
Vine:	6	6.80%	Biennial:	8	9.10%			
Forb:	49	55.70%	Native Annual:	3	3.40%			
Grass:	3	3.40%	Native Perennial:	36	40.90%			
Sedge:	3	3.40%	Native Biennial:	0	0%			
Rush:	1	1.10%						
Fern:	0	0%						
Bryophyte:	0	0%						
Species:								
Scientific Name	Family	Acronym	Native?	C	W	Physiognomy	Duration	Common Name
<i>Abutilon theophrasti</i>	Malvaceae	ABUTHE	non-native	0	3	forb	annual	velvet-leaf
<i>Acer negundo</i>	Sapindaceae	ACENEG	native	0	0	tree	perennial	box-elder
<i>Acer nigrum; a. saccharum</i>	Sapindaceae	ACENIG	native	4	3	tree	perennial	black maple
<i>Acer glabroides</i>	Sapindaceae	ACEPLA	non-native	0	5	tree	perennial	norway maple
<i>Acer saccharum</i>	Sapindaceae	ACESAU	native	5	3	tree	perennial	sugar maple
<i>Achillea millefolium</i>	Asteraceae	ACHMIL	native	1	3	forb	perennial	yarrow
<i>Alliaria petiolata</i>	Brassicaceae	ALLPET	non-native	0	3	forb	biennial	garlic mustard
<i>Allium canadense</i>	Alliaceae	ALLCAN	native	4	3	forb	perennial	wild garlic
<i>Ambrosia artemisiifolia</i>	Asteraceae	AMBART	native	0	3	forb	annual	common ragweed
<i>Ambrosia trifida</i>	Asteraceae	AMBTRI	native	0	0	forb	annual	giant ragweed
<i>Apios americana</i>	Fabaceae	APIAME	native	3	-3	vine	perennial	groundnut
<i>Artemisia absinthium</i>	Asteraceae	ARTABS	non-native	0	5	forb	perennial	absinth wormwood
<i>Asclepias syriaca</i>	Apocynaceae	ASCSYR	native	1	5	forb	perennial	common milkweed
<i>Atropa belladonna</i>	Solanaceae	ATRBEL	non-native	0	5	forb	perennial	deadly nightshade
<i>Barbarea vulgaris</i>	Brassicaceae	BARVUL	non-native	0	0	forb	biennial	yellow rocket
<i>Campsis radicans</i>	Bignoniaceae	CAMRAD	non-native	0	0	vine	perennial	trumpet-vine
<i>Carex palleascens</i>	Cyperaceae	CXPALL	native	5	0	sedge	perennial	pale sedge
<i>Carex vulpinoidea</i>	Cyperaceae	CXVULP	native	1	-5	sedge	perennial	sedge
<i>Celastrus orbiculatus</i>	Celastraceae	CELORB	non-native	0	5	vine	perennial	oriental bittersweet
<i>Centaurea stoebe; c. maculosa</i>	Asteraceae	CENSTO	non-native	0	5	forb	biennial	spotted knapweed
<i>Chenopodium album</i>	Amaranthaceae	CHEALB	non-native	0	3	forb	annual	lambs-quarters
<i>Cichorium intybus</i>	Asteraceae	CICINT	non-native	0	3	forb	perennial	chicory
<i>Cirsium arvense</i>	Asteraceae	CIRARV	non-native	0	3	forb	perennial	canada thistle
<i>Cirsium vulgare</i>	Asteraceae	CIRVUL	non-native	0	3	forb	biennial	bull thistle
<i>Convolvulus arvensis</i>	Convolvulaceae	CONARV	non-native	0	5	vine	perennial	field bindweed
<i>Crataegus phaenopyrum</i>	Rosaceae	CRAPHA	non-native	0	0	tree	perennial	washington thorn
<i>Cynodon dactylon</i>	Poaceae	CYNDAC	non-native	0	3	grass	perennial	bermuda grass
<i>Cyperus esculentus</i>	Cyperaceae	CYPESC	native	1	-3	sedge	perennial	yellow nutsedge
<i>Datura stramonium</i>	Solanaceae	DATSTR	non-native	0	5	forb	annual	jimson-weed
<i>Daucus carota</i>	Apiaceae	DAUCAR	non-native	0	5	forb	biennial	queen-anne's-lace
<i>Dianthus armeria</i>	Caryophyllaceae	DIAARM	non-native	0	5	forb	annual	deptford pink
<i>Elaeagnus umbellata</i>	Elaeagnaceae	ELAUMB	non-native	0	3	shrub	perennial	autumn-olive
<i>Erechtites hieracifolius</i>	Asteraceae	EREHIE	native	2	3	forb	annual	fireweed
<i>Eupatorium perfoliatum</i>	Asteraceae	EUPPER	native	4	-3	forb	perennial	boneset
<i>Euthamia graminifolia</i>	Asteraceae	EUTGRA	native	3	0	forb	perennial	grass-leaved goldenrod
<i>Filipendula ulmaria</i>	Rosaceae	FILULM	non-native	0	0	forb	perennial	queen-of-the-meadow
<i>Fragaria virginiana</i>	Rosaceae	FRAVIR	native	2	3	forb	perennial	wild strawberry
<i>Fraxinus pennsylvanica</i>	Oleaceae	FRAPEN	native	2	-3	tree	perennial	red ash
<i>Geum urbanum</i>	Rosaceae	GELURB	non-native	0	5	forb	perennial	avens
<i>Glechoma hederacea</i>	Lamiaceae	GLEHED	non-native	0	3	forb	perennial	ground-ivy
<i>Hesperis matronalis</i>	Brassicaceae	HESMAT	non-native	0	3	forb	perennial	dames rocket
<i>Hypericum perforatum</i>	Hypericaceae	HYPPER	non-native	0	5	forb	perennial	common st. johns-wort
<i>Juncus articulatus</i>	Juncaceae	JUNART	native	3	-5	rush	perennial	jointed rush
<i>Juniperus virginiana</i>	Cupressaceae	JUNVIR	native	3	3	tree	perennial	red-cedar
<i>Leucanthemum vulgare; chrysanthemum leucanthemum</i>	Asteraceae	LEUVUL	non-native	0	5	forb	perennial	ox-eye daisy
<i>Ligustrum vulgare</i>	Oleaceae	LIGVUL	non-native	0	3	shrub	perennial	common privet
<i>Lonicera maackii</i>	Caprifoliaceae	LONMAA	non-native	0	5	shrub	perennial	amur honeysuckle
<i>Lotus corniculatus</i>	Fabaceae	LOTCOR	non-native	0	3	forb	perennial	birdfoot trefoil
<i>Lythrum salicaria</i>	Lythraceae	LYTSAL	non-native	0	-5	forb	perennial	purple loosestrife
<i>Maianthemum racemosum; smilacina r.</i>	Comvalliaceae	MAIRAC	native	5	3	forb	perennial	false spikenard
<i>Marrubium vulgare</i>	Lamiaceae	MARVUL	non-native	0	3	forb	perennial	horehound
<i>Matricaria chamomilla; m. recutita</i>	Asteraceae	MATCHA	non-native	0	5	forb	annual	false chamomile
<i>Mellilotus albus</i>	Fabaceae	MELALB	non-native	0	3	forb	biennial	white sweet-clover
<i>Mellilotus officinalis</i>	Fabaceae	MELLOF	non-native	0	3	forb	biennial	yellow sweet-clover
<i>Morus alba</i>	Moraceae	MORALB	non-native	0	3	tree	perennial	white mulberry
<i>Parthenocissus quinquefolia</i>	Vitaceae	PARQUI	native	5	3	vine	perennial	virginia creeper
<i>Phragmites australis var. americanus</i>	Poaceae	PHRAUM	native	5	-3	grass	perennial	reed
<i>Phytolacca americana</i>	Phytolaccaceae	PHYAME	native	2	3	forb	perennial	pokeweed
<i>Pinus resinosa</i>	Pinaceae	PINRES	native	6	3	tree	perennial	red pine
<i>Pinus sylvestris</i>	Pinaceae	PINSYL	non-native	0	3	tree	perennial	scotch pine
<i>Plantago lanceolata</i>	Plantaginaceae	PLALAN	non-native	0	3	forb	perennial	english plantain
<i>Populus deltoides</i>	Salicaceae	POPDEL	native	1	0	tree	perennial	cottonwood
<i>Prunella vulgaris</i>	Lamiaceae	PRUVUL	native	0	0	forb	perennial	self-heal
<i>Prunus serotina</i>	Rosaceae	PRUSER	native	2	3	tree	perennial	wild black cherry
<i>Quercus rubra</i>	Fagaceae	QUERUB	native	5	3	tree	perennial	red oak
<i>Quercus velutina</i>	Fagaceae	QUEVEL	native	6	5	tree	perennial	black oak

Rhamnus cathartica	Rhamnaceae	RHACAT	non-native	0	0	tree	perennial	common buckthorn
Rhus typhina	Anacardiaceae	RHUTYP	native	2	3	shrub	perennial	staghorn sumac
Robinia pseudoacacia	Fabaceae	ROBPSE	non-native	0	3	tree	perennial	black locust
Rosa multiflora	Rosaceae	ROSMUL	non-native	0	3	shrub	perennial	multiflora rose
Rudbeckia hirta	Asteraceae	RUDHIR	native	1	3	forb	perennial	black-eyed susan
Rumex crispus	Polygonaceae	RUMCRI	non-native	0	0	forb	perennial	curly dock
Salix discolor	Salicaceae	SALDIS	native	1	-3	shrub	perennial	pussy willow
Salix nigra	Salicaceae	SALNIG	native	5	-5	tree	perennial	black willow
Sassafras albidum	Lauraceae	SASALB	native	5	3	tree	perennial	sassafras
Solanum carolinense	Solanaceae	SOLCAR	non-native	0	3	forb	perennial	horse-nettle
Solidago canadensis	Asteraceae	SOLCAN	native	1	3	forb	perennial	canada goldenrod
Solidago gigantea	Asteraceae	SOLGIG	native	3	-3	forb	perennial	late goldenrod
Solidago juncea	Asteraceae	SOLJUN	native	3	5	forb	perennial	early goldenrod
Sonchus oleraceus	Asteraceae	SONOLE	non-native	0	3	forb	annual	common sow-thistle
Sorghum halepense	Poaceae	SORHAL	non-native	0	3	grass	perennial	johnson grass
Taraxacum officinale	Asteraceae	TAROFF	non-native	0	3	forb	perennial	common dandelion
Toxicodendron radicans	Anacardiaceae	TOXRAD	native	2	0	vine	perennial	poison-ivy
Trifolium pratense	Fabaceae	TRIPRA	non-native	0	3	forb	perennial	red clover
Trifolium repens	Fabaceae	TRIREP	non-native	0	3	forb	perennial	white clover
Verbascum thapsus	Scrophulariaceae	VERTHA	non-native	0	5	forb	biennial	common mullein
Viburnum acerifolium	Adoxaceae	VIBACE	native	6	5	shrub	perennial	maple-leaved viburnum
Vinca minor	Apocynaceae	VIMMIN	non-native	0	5	shrub	perennial	periwinkle

Sustainability Evaluation of “Former Airport Property”



This report was created for:

City of Saugatuck
102 Butler St, Saugatuck, MI 49453

Sustainability Evaluation

ODC Network sustainability staff evaluated the sustainability performance of the City of Saugatuck-owned “Former Airport” property (parcel #'s: 20-002-027-00 and 20-260-002-00), both in its current state and potential future uses. This assessment involved an examination of carbon sequestration and mitigation potential, air pollution, hydrological benefits, EV charging feasibility, and solar development opportunity. The primary purpose of this work was to identify opportunities for improving sustainability performance and strategies to balance and support social, environmental, and economic needs of the community.

Executive Summary

The forest cover of this site represents the bulk of its value as a sustainability asset to the community. The ecological services provided by the large areas of mature, biodiverse, and healthy forests should be preserved and emphasized in any future use plans for the property. In addition to its intrinsic value as high-quality habitat and natural area, the property has a measurable impact on factors directly associated with human health, wellness, and prosperity. Unless significant redevelopment of the parcel and surrounding area were to occur, opportunities to leverage the property for electric vehicle charging and/or solar development are non-existent.

Valuation of Existing Canopy

The data presented here provided a quantitative assessment of the properties role in combating climate change, enhancing air quality, and sustaining the water balance within the region.

Sequestration Value of Existing Canopy

Healthy forests capture and store large quantities of CO₂, the primary greenhouse gas associated with human-caused emissions and climate change. This relatively large tract of forest acts as a significant carbon sink in the community. At the time of this report, the tree cover alone stores over 5,000 metric tonnes of carbon or the equivalent to approximately 20,000 metric tonnes of CO₂. The US Forest Service estimates the social cost of this quantity of carbon to be upwards of \$900,000. Each year, the property is projected to sequester an additional 200+ metric tons of carbon, the equivalent to 100 homes’ energy use for one year (**Appendix B**)

Description	Carbon (T)	±SE	CO ₂ Equiv. (T)	±SE	Value (USD)	±SE
Sequestered Annually in Canopy	217.94	±3.98	799.11	±14.58	\$37,169	±678
Stored in Trees (Not Annual)	5,473.24	±99.85	20,068.55	±366.13	\$933,465	±17,030

Soil-based carbon sequestration values were not included in this report (standard measurement practices and tools are still in development), however, it is highly likely that this represents an additional carbon sink and ecosystem service provided by the property in its current state.

Air Pollution Value of Existing Canopy

In addition to carbon sequestration, healthy forests also play a critical role in the moderation of air quality and air pollution. At the time of this report, the existing canopy of this property has the potential to remove over 12,000 lbs. of air pollution each year. Notably, this includes particulate matter (PM2.5 and PM10), one of the primary concerns associated with the increased presence of wildfire smoke in West Michigan.

Abbr.	Description	Annual Removal (lbs.)	±SE	Value (USD)	±SE
CO	Carbon Monoxide	142.56	±2.60	\$2	±0
NO2	Nitrogen Dioxide	776.85	±14.75	\$3	±0
O3	Ozone	7,822.81	±142.72	\$185	±3
SO2	Sulfur Dioxide	494.87	±9.03	\$1	±0
PM2.5	Particulate Matter <2.5 Microns	379.38	±6.92	\$373	±7
PM10	Particulate Matter <10 Microns	2,635.50	±48.08	\$150	±3
Total		12,251.98	±223.52	\$714	±13

Hydrological Value of Existing Canopy

Forests are also a key component of the water cycle and healthy watersheds. The trees alone on this property help to filter and manage over 20,000 gallons of water (the size of an average swimming pool in the United States) each year.

Abbr.	Benefit	Amount (gal)	±SE
AVRO	Avoided Runoff	34.83	±0.64
E	Evaporation	5,935.62	±108.29
I	Interception	5,967.80	±108.88
T	Transpiration	8,496.19	±155.00
Total		20,434.44	±372.81

*Data calculated using I-Tree software, A product produced through the collaboration of the US Forest Service, Davey, Arbor Day Foundation, Society of Municipal Arborists, Casey Trees, International Society of Arboriculture. See **Appendix A** for more information.*

EV Charging Evaluation

Public entities including parks, beaches, and nature preserves represent increasingly popular locations for EV chargers as demand rises for charging options that provide entertainment and recreation opportunities while drivers and passengers refuel (Appendix C). At the time of this report, the charging infrastructure of the Saugatuck is considered underdeveloped and ripe with opportunity for additional public charging facilities. The portion of Interstate 196 passing through the Saugatuck area does not yet meet the US Department of Energy's minimum distance or fuel-specific station requirements to qualify as an electric-vehicle ready corridor.

Although demand at this property could increase depending on future-use plans and public accessibility, investment in publicly available EV charging facilities should be prioritized elsewhere in the community before focusing on this area. The property is ineligible for the Department of Environment Great Lakes and Energy's Charge Up Michigan program and will likely be ineligible for other funding sources due to its distance from local thoroughfares and population centers. (The current driveway is 1.59 miles from exit 41, 4.58 miles from exit 36)

Solar Evaluation

As it stands, the property does not lend itself to solar development satisfying only one of four priorities typically considered in site selection:

- **Three-phase power:** Close proximity (less than 1 mile) to 3-phase power is a minimum requirement for solar development, which is conveniently present along 63rd street.
- **Substation:** Close proximity (less than 3 miles) to an electrical substation is commonly preferred for solar development. The nearest substations are located 6.89 miles and 8.15 miles away.
- **Ecological loss:** Current solar developments prioritize land that has already been cleared and leveled. In addition to the logistical issue of clearing the land, the social and environmental cost of site preparations for a ground-mount solar array (minimum of 20 acres) would likely outweigh the potential returns (Annual lease rates currently hover between \$600 - \$1,500 per acre).

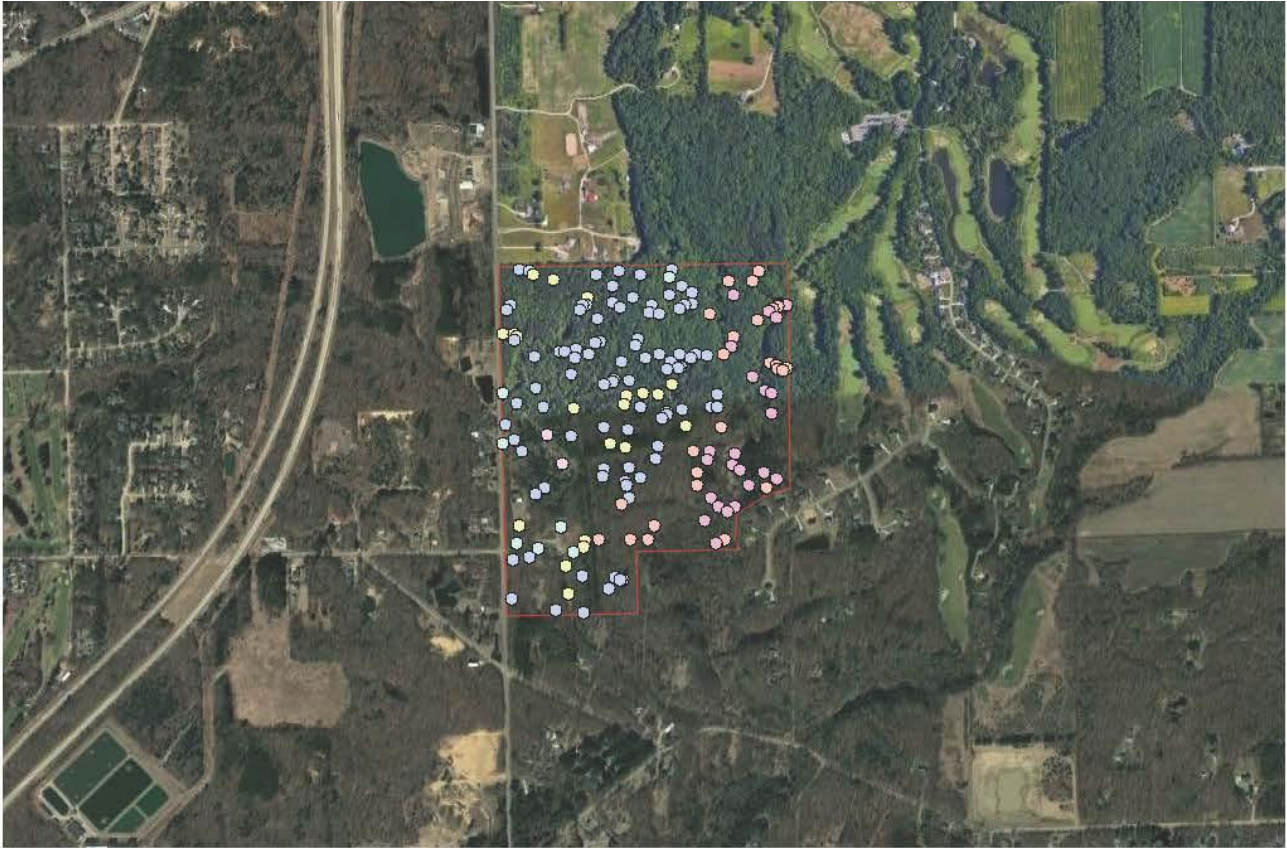
- **Competitive Alternatives:** The presence of numerous alternative sites in the region with a lower opportunity cost for solar development (parking lots, rooftops, vacant property, agricultural land) pose significant competition making this property an unlikely candidate.

Composting/Yard Waste Material Management

The disturbed area of property currently used to manage DPW lawn waste appears compliant with Section 11521(4)(b)(i) and (ii), of Part 115, Solid Waste Management, of the Natural Resources and Environmental Protection Act, 1994 PA 451 requirement for use as a Commercial Composting facility. If demand for a larger local composting facility to serve residential needs exists, many aspects of this location make it a good candidate for consideration. The western half of the property is well-buffered from required setbacks and is visually isolated from major residential and commercial areas. The eastern half of the property could serve as an olfactory buffer to any neighbors downwind of the operation. If this opportunity were pursued, caution should be taken to avoid the introduction of invasive species to the surrounding natural areas through the translocation of yard and lawn waste. If co-developed with a trail system and other recreational opportunities, careful planning would be necessary to isolate operations from public-use areas.

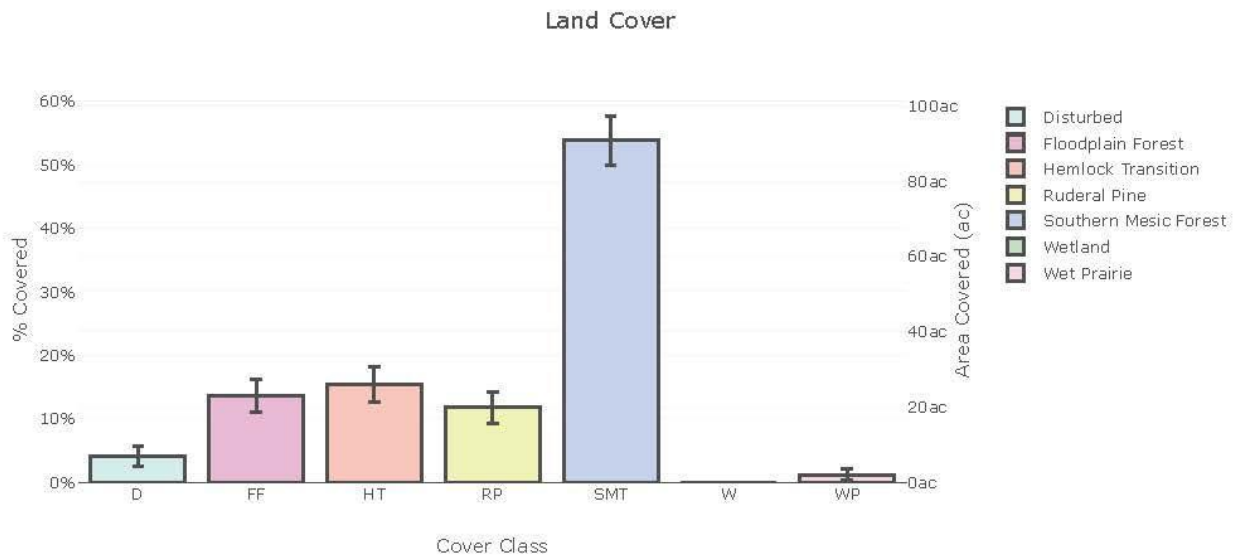
Appendix A: Canopy Valuation Results

Data calculated using I-Tree software. A product produced through the collaboration of the US Forest Service, Davey, Arbor Day Foundation, Society of Municipal Arborists, Casey Trees, International Society of Arboriculture.



Google

Imagery ©2023, CNES / Airbus, Maxar Technologies, NOAA, USDA/FPAC/GEO Report a map error



Appendix B: Canopy Sequestration Equivalencies













Calculated using EPA [Greenhouse Gas Equivalencies Calculator](#)

799 Metric Tons of Carbon Dioxide (CO₂) equivalent

This is equivalent to greenhouse gas emissions from:

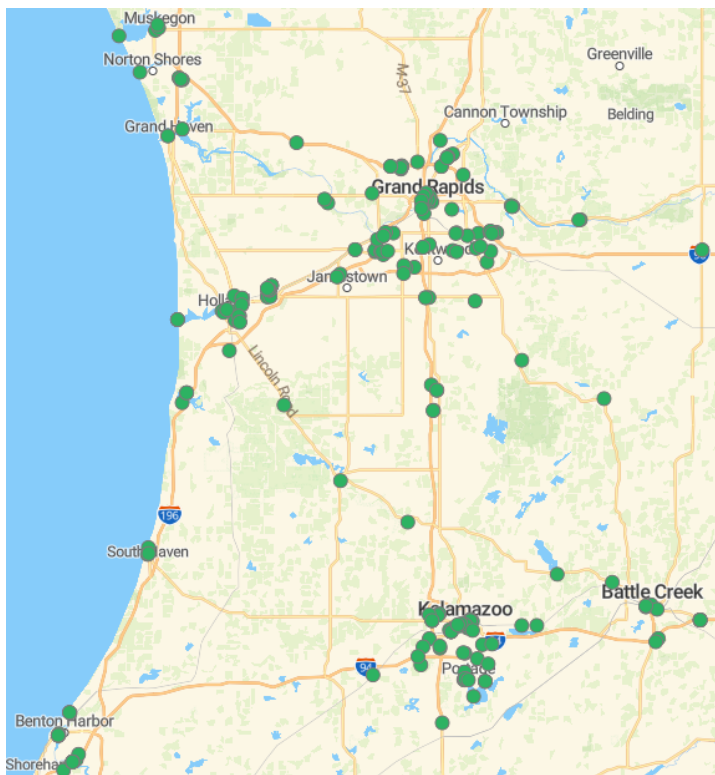
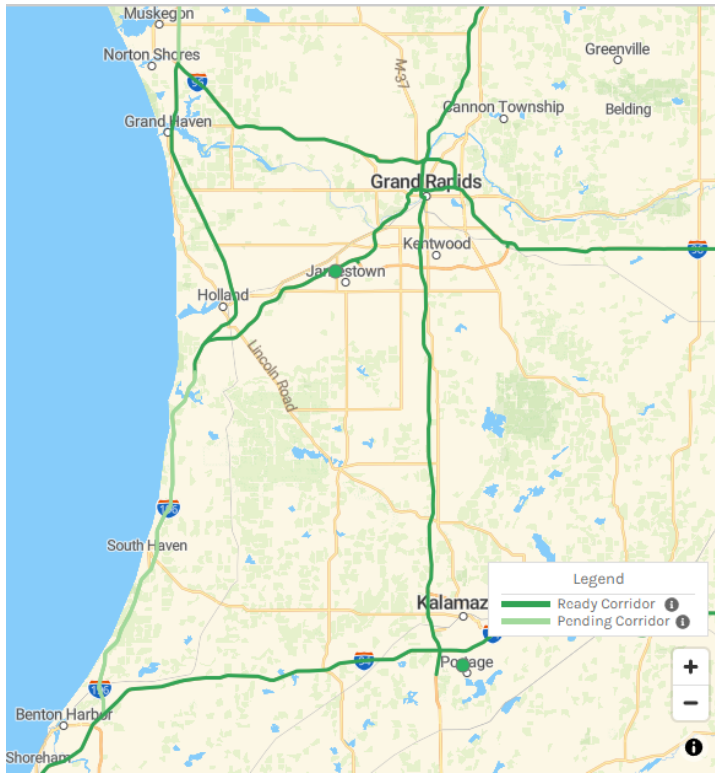
178 gasoline-powered passenger vehicles driven for one year 	2,048,557 miles driven by an average gasoline-powered passenger vehicle 
---	---

This is equivalent to CO₂ emissions from:

89,919 gallons of gasoline consumed 	78,498 gallons of diesel consumed 
895,126 pounds of coal burned 	10.6 tanker trucks' worth of gasoline 
101 homes' energy use for one year 	155 homes' electricity use for one year 
4.4 railcars' worth of coal burned 	1,848 barrels of oil consumed 
36,710 propane cylinders used for home barbeques 	0.0002 coal-fired power plants in one year 
0.002 natural gas-fired power plants in one year 	97,205,855 number of smartphones charged 

Appendix C: EV Charging Supporting Data

Source: U.S. Department of Energy Alternative Fuels Data Center



Appendix D: Commercial Composting Regulatory Requirements

[Department of Environment, Great Lakes, and Energy Commercial Composting](#)

Yard Waste Composting Isolation Distances (feet)

According to Section 11521(4)(b)(i) and (ii), of Part 115, Solid Waste Management, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, registered composting sites must maintain certain isolation distances to property lines, residences, surface water, wells, and sensitive receptors. The following table contains these requirements.

	Facility in operation before December 1, 2007	Facility in operation after December 1, 2007
Property line	50	50
Residence	200	200
Surface water	100	100
Type I or IIA water supply well	NA	2,000
Type IIB or III water supply well	NA	800
Sensitive receptor	NA	500
Groundwater	NA	4

SOAR Analysis of “Former Airport Property”



This report was created for:

City of Saugatuck
102 Butler St, Saugatuck, MI 49453

The following is the written account of the third part of a strategic analysis for the former airport site. The previous components included both an ecological evaluation and sustainability evaluation completed by the ODC Network in August of 2023.

On October 20, 2023, from 3-4:15pm, Dave Nyitray and Sarah Irvin of the ODC Network conducted a SOAR Analysis to gather public comment about future plans for the City of Saugatuck-owned “Former Airport” property. This meeting took place at Saugatuck City Hall with 14 participants. A zoom recording of the meeting is on record at the City of Saugatuck, and [available on YouTube](#).

Goal: Use the SOAR Model to analyze the Former Airport property site

- Expectations for the activity:
 - This activity will not result in a list of concrete tasks to move forward with, but 1.) starts the conversation to make sure multiple perspectives are considered and 2.) shows City Council what the predominant wishes, priorities, and interests from the attending group are that should be considered throughout this planning process.
- The analysis:
 - Following the SOAR model, questions were posed to the group that prompted the submission of answers via sticky notes. Sticky notes were gathered, sorted, and emerging themes were voted on to measure overall priority/ interest, (regardless of the number of sticky notes that contributed to the creation of each individual theme). After the meeting, the ODC compiled notes and feedback discussed, and synthesized with existing Ecological and Sustainability reports for City review to inform their decision-making process.
- Conclusions:
 - Top Strength: The natural state of the park: the existing trees, and the past and present value to humans as a carbon sink, and to organisms as habitat.
 - Top Opportunity: Creating connectivity within the trails and community for the purpose of low-impact recreational use. While inherently beneficial, this option balances the preservation of the area for habitat and future generations with granting residents and tourists sustainable access to a large, continuous natural space.
 - Top Aspiration: Connecting nearby organizations and natural properties: many people care about and would use this land so relevant groups should be included in the planning process. In addition, as wonderful as this continuous property is, it could be made larger by connecting trails with surrounding natural properties.
 - Top Result: Activating the property + Build out/ Define trails: In the immediate future, make the property safe and alluring to visit by building out trails/ infrastructure, offering educational opportunities, and letting residents and visitors know that it’s available as a low-impact recreational space.
- Follow-up needed:
 - Complete an analysis on the monetary value of keeping compost and yard waste drop-off/ storage active here, even if the logistics/ rules must change slightly to better protect the

environment, with the purpose of comparing that value to what it would cost to haul the material elsewhere.

- Engage with the following groups for additional input and/or collaboration:
 - Tri-Communities
 - Surrounding school districts
 - Township (not limited to, but at least to discuss whether the new trail system could connect to neighboring Trails n Trails routes to create longer continuous trails)

Note: Anything in italics below is a direct quote from a sticky note submitted by a participant.

Strengths

Answering the questions:

- What do we build on?
- What do we excel at / are most proud of?
- What makes the property unique?
- What are our values?

Emerging Themes

- Ranked by priority of participants (*Votes/Total Participants*)
- 1. Existing Forest as habitat (*7/14*)
 - a. *Huge carbon sink*
 - b. *Mature forest*
 - c. *Value of existing canopy to: 1.) combat climate change and 2.) enhance air quality*
 - d. *Keep it natural*
 - e. *Save habitat for animals*
 - f. *Protect from trash, etc*
 - g. *Preserve rustic nature*
- 2. Size/Location/ physical attributes of the property as they pertain to people (*3/14*)
 - a. *Last existing continuous parcel that's undeveloped in that area*
 - b. *Large portion of undeveloped environment*
 - c. *Large parcel for animals and plants to co-exist*
 - d. *Large piece of natural, undeveloped land*
 - e. *Minimize trails to keep wild*
 - f. *Size*
 - g. *Location*
 - h. *Out of the way*
- 3. Existing Trails (*2/14*)
 - a. *Existing foot trails*
 - b. *Trails*
 - c. *Existing building & utilities*
- 4. Partnership + Connecting/ Tri-Communities Plan (*2/14*)
 - a. *Current interest in sustainability*
 - b. *PPW commission to move ideas forward*
 - c. *Parks Committees in Saugatuck & Township working together*
 - d. *Helps link City to Township + our trails*
 - e. *Need for expansion of park system for S'tuck & Township & Douglas*
 - f. *Tri-Community Master Plan supports environmental stewardship and park development*

- g. *Hiking communities in Tri-Community area*
 - h. *Can partner with Township Park to create an amazing outdoor area*
 - i. *Cross country ski & run trail*
 - j. *Connect to other parks*
 - k. *Property available for park development*
 - l. *Maybe consider joint venture with nearby Tails n Trails area (although dogs may not be good for species of concern)*
 - m. *Current interest in connecting trails*
 - n. *Education value*
5. Natural Beauty (0/14)
- a. *Property is stunningly beautiful!*
 - b. *Supports the natural beauty that's integral to what makes Tri-Communities unique and beautiful*
 - c. *Residents and visitors are here because of the natural beauty of this area*
 - d. *Beautiful natural site...a shame no one much goes there*
6. Existing Compost/ Yard Waste (0/14)
- a. *Composting*

Opportunities

Answering the questions:

- What's happening around us?
- What changes and gaps in the community align with identified strengths?
- What threats do we see that we could reframe as opportunities?
- What needs and wants are we currently not fulfilling for our residents?
- What partnerships would lead to greater success?

Emerging Themes

- Ranked by priority of participants ([Votes/Total Participants](#))
1. Connectivity of the trails for the purpose of low-impact recreational use by people (connecting trails/ Tri-Community Plan/ Hiking) (10/14)
- a. *Partnership with Township in trails*
 - b. *Tri-Community environmental projects*
 - c. *Build on tri-community planning and connections*
 - d. *Meet growing demand for green spaces/ parks that provide a variety of experiences*
 - e. *Healthy lifestyle for residents*
 - f. *Open hiking trails for health and recreation*
 - g. *63rd is relatively quiet (traffic-wise) for access to property via bicycle*
 - h. *Working to connect all our trails*
 - i. *Relieve pressure from Saugatuck Dunes St. Park & Mt. Baldhead Park PLUS create variety for hikers to enjoy*
 - j. *More local trails*
 - k. *Connect trails*
 - l. *Tri-Community interest in trails*
 - m. *Supporting the schools through education*
 - n. *Tree & wildlife education*

2. Prioritizing the Protection/ Restoration of the property for the purpose of protecting habitat for wildlife (Plants/Animals/Old forest) (3/14)
 - a. *Control invasive species from choking out canopy, etc*
 - b. *Protecting environment*
 - c. *Interest in preserving natural habitat*
 - d. *Protecting forest and habitat*
 - e. *Protecting habitat*
 - f. *Protect plant life from insects etc - ex: Hemlocks*
 - g. *Keep sky dark at night*
 - h. *Protect natural land from development*
 - i. *Protect space for animals*
 - j. *Preserving old forest*
 - k. *Create a large chunk of undeveloped (or minimally developed) green space for native plants and animals (who don't get to vote)*
 - l. *Preserve such a large piece of land*
 - m. *Once it's gone we won't ever have that much land again*
 3. Use designed for medium-high impact recreation (biking/ tourism) (0/14)
 - a. *Use as marketing for tourism*
 - b. *Winter sports lacking - could help with that*
 - c. *Create natural space to attract people to the area (trails, etc)*
 4. Art (0/14)
 - a. *Art and Nature meet*
 - b. *Sculpture Trail*
 5. Else (Not easily sorted into an above category, not voted on)
 - a. *Create a place for people (residents) to collect composted humus for their landscape to hold rainwater*
 - b. *Composting revenue*
 - c. *A nature-sensitive site for affordable housing*
-

Aspirations

Answering the questions:

- What does the future look like?
- What is our vision for the future, what do we want to achieve?
- How can we make a difference?
- What are we passionate about?

Emerging Themes

- Ranked by priority of participants ([Votes/Total Participants](#))
1. Connecting existing organizations/ nearby natural properties (6/11)
 - a. *Restore trails to connect communities*
 - b. *Positive intra community connection*
 - c. *Accessibility for all- universal trail access*
 - d. *Connect to Blue Star non-motorized trails*
 - e. *Tails linked to Tails n Trails property*
 - f. *Connect to landfill property for trails and sports*
 - g. *Community gardens for part of land*

- h. *Start land match gesture to neighbors*
 - 2. Create year-round recreation (3/11)
 - a. *Sports fields in disturbed areas*
 - b. *Winter sports haven to make Saugatuck a 4 season destination*
 - c. *Cross Country running*
 - d. *Cross country skiing*
 - e. *Cross-country, snowshoeing in winter*
 - 3. Preserving/ conservation (3/11)
 - a. *Safely preserved - no threat of development in the future*
 - b. *Nature preserved*
 - c. *Maintain the last piece of untouched land. Light Activity?*
 - d. *Promote protection of nearby parcels*
 - e. *Encourage more conservation*
 - f. *Awed by nature*
 - 4. Benefit people (0/11)
 - a. *A place for families to spend time in nature*
 - b. *Area known Art Coast & nature destination*
 - c. *Compost facility for our residents*
 - d. *A use that benefits the greatest number of Saugatuck citizens while maintaining the natural beauty*
 - e. *A local attraction used daily by Tri-Community residents*
 - f. *Trail signage to educate about plants, animal habitat, forest, birds, etc*
 - g. *Awesome trails!!*
 - h. *Love the ODC buildout @ RidgePt- trails like that would be amazing here*
 - i. *Shelter with picnic tables, grills*
-

Results

-Note: Tackled this from the perspective of, "What can we focus on in the immediate future?"

Answering the questions:

- How do we know what success looks like?
- What measures will tell us we are on track to achieve success?
- How do we know when we've achieved our goals?
- How do we measure impact, change or improvement?

Emerging Themes

- Ranked by priority of participants ([Votes/Total Participants](#))
- 1. Activating the property + Build out/ Define trails: Make the property safe and alluring to visit by building out trails/ infrastructure and offering educational opportunities (8/11)
 - a. *Work with township to develop plan for trails that could [be] more easily connected*
 - b. *Plan to groom existing trails, and potentially expand where it is easy*
 - c. *More trails*
 - d. *Clear/ mark distinct trails*
 - e. *Open trails for hiking - minimal impact on nature*
 - f. *Let residents know they may hike there - at their own risk*

- g. Guided walks/ hikes*
 - h. Restore trails with educational markers*
 - i. Open park*
 - j. Clear trails*
 - k. Gravel parking lot*
 - l. Porti pottys*
 - m. Open to the public*
 - n. Create parking area*
 - o. Legitimize the existing trails*
 - p. Communicate about the property & trails*
 - q. Connect to township park for cross-country team to practice and host meets*
2. Do more homework: Continue the conversation with other groups of people (3/11)
 - a. A broad range of community members participating in envisioning the future for the land, including those who might prefer options this group wouldn't suggest*
 3. Conserve land: Set aside land to be conserved solely for the protection of the plants and animals that live there (0/11)
 - a. Buy and conserve surrounding land*
 - b. Cost estimate to deal with invasive species*
 - c. Conserve large portions*
 - d. Identify areas to keep conserved NOW based on ODC report and restrict access*
-

Final question: What haven't we captured that should be considered throughout this process?

- Mid/Long Term
 - Compost Study/ Act: Could we have a cost analysis done on the value of keeping compost and yard waste in part of this property as opposed to shipping that material elsewhere?
- Engage Tri-Community
- Look at other models
 - ODC Network's Nature Preserve was cited as an example of what the management and conservation of a natural property with access for low-impact recreation and self-guided education/ exploration could look like
- School District Engagement
 - Already communicate for sports, could also communicate here

Verbally communicated from the participants:

- Thankfully these discussions are going to preserve the land regardless of whether it is for use by people or habitat conservation—developing it into something other than a natural space is not even on the table
- These suggestions are intended to be the lasting impact that a room full of older folks can contribute both to the environment itself, as well as subsequent generations



City Council Agenda Item Report

FROM: Ryan Cummins – Interim City Manager

MEETING DATE: May 8, 2024

SUBJECT: Intersection Improvements at Lake/Blue Star for Multi-Modal Trail

DESCRIPTION:

In December, City Council approved a general services agreement with C2AE for improved streetscape design at the intersection of Lake Street and Blue Star Highway. The improvements are for the pending Blue Star Trail project.

The design services have included pallet sign improvements and a traffic signal. After review by the Department of Public Works, City’s engineer, and several meetings with the Parks and Public Works Committee, the attached plan is being recommended.

The proposed intersection improvements include:

- Shifting the pallet sign 4.8 feet to make room for the new trail.
- New landscaping around the pallet that incorporates native materials including:
 - Dune Grass
 - Mixed perennials
 - Cedar trees
 - Crabapple tree
 - Drystack stone planter
- A new traffic signal consistent with a previous rendering by Fleis and Vandenbrink.
 - Two previous engineering studies reviewed a traffic signal for this intersection which considered the new trail being constructed:
 - 2019 Fleis and Vandenbrink Recommendation: “The trail crosses Lake Street similar to a traditional crosswalk at a controlled intersection. The intersection could either remain stop-controlled or be upgraded to signal control, depending on City and Fire Department operational preference.”
 - 2021 Hubbel, Roth & Clark (HRC) Recommendation to Road Commission: “Given that Lake Street meets multiple signal warrants, HRC recommends installing a traffic signal at this intersection. Volumes are sufficiently high at this intersection, and the signal could provide additional safety for bicyclists and pedestrians once multi-modal connections are completed.”

C2AE has advised that, with the exception of the proposed traffic signal, the improvements are eligible to be covered under the existing grants. Currently, the traffic signal is estimated to cost \$200,000. Staff has included these funds in next year's proposed budget. A new MDOT Shared Streets and Spaces grant opportunity has surfaced that staff and C2AE believe is a good opportunity to fund the new signal. Staff is seeking approval to use the unused contingency in the general services agreement for C2AE to prepare the grant application package.

To keep the trail project on schedule, staff is seeking City Council approval to move forward with the recommended plans. If the Council approves, Historic District Commission approval will also be sought.

LEGAL REVIEW:

N/A.

SAMPLE MOTION:

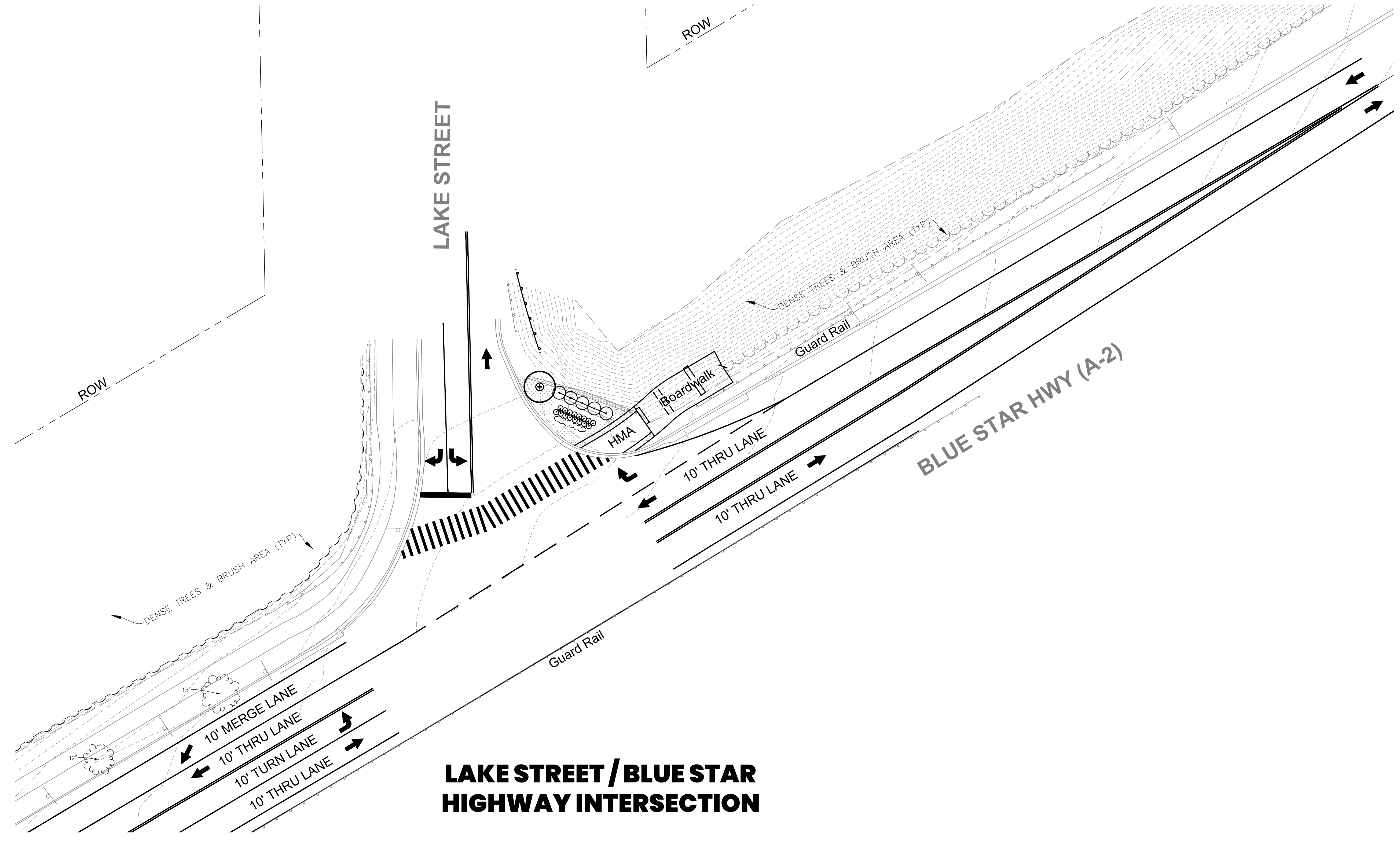
Motion to approve the Lake/Blue Star intersection improvement plans including pallet sign movement and landscaping consistent with the designs, installation of a traffic signal consistent with the renderings, the use of up to \$5,000 in contingency funds in the C2AE general services agreement to apply for grants to fund the traffic signal installation, and to authorize the Interim City Manager to apply on behalf of the City to the Historic District Commission for the improvements and further authorize the Mayor and City Clerk to sign the application form on behalf of the City as the owner.

THE BAR BELOW SHOWS
PRIMARY COLORS

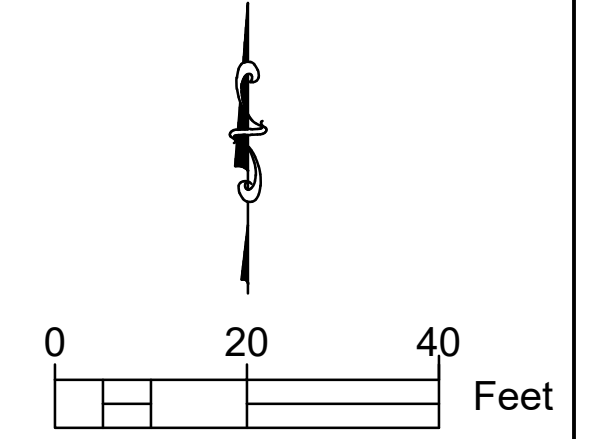
THE BAR BELOW SHOWS
GRAYSCALE FROM WHITE TO SOLID
BLACK

WE RECYCLE

4/18/2024 1:16 PM
C:\2023\230038_Saugatuck_BlueStar_T1\Drawings\DS_230038_Saugatuck_BlueStar_Trail\Sheet\230038_Lake_Intersection.dwg - GENERAL LAYOUT
ADAMS, MARK
DESIGNED BY: -
CHECKED BY: -
APPROVED BY: -



**LAKE STREET / BLUE STAR
HIGHWAY INTERSECTION**



(866) 454-3923 | WWW.C2AE.COM

INTERSECTION GENERAL PLAN

SAUGATUCK PALETTE SIGN
ALLEGAN COUNTY, MI

PHASE

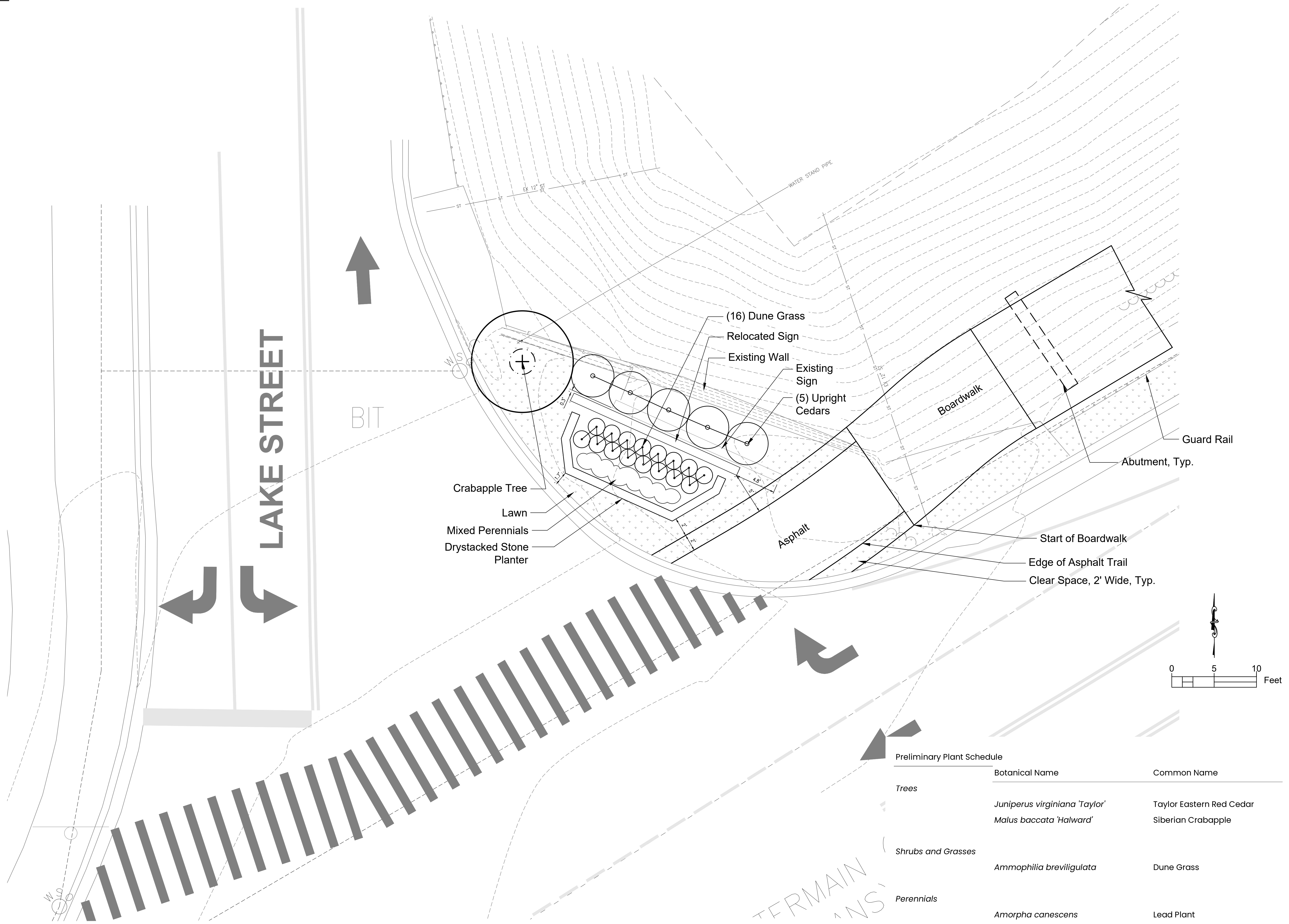
SCHEMATIC DESIGN

ISSUANCES

#	DESCRIPTION	DATE
0	SCHEMATIC DESIGN	18JAN2024

PROJ. #: 230038
COPYRIGHT © C2AE
NOT TO BE REPRODUCED OR DISTRIBUTED
WITHOUT PRIOR WRITTEN CONSENT
ALL RIGHTS RESERVED





LANDSCAPE PLAN
SAUGATUCK PALETTE SIGN
ALLEGAN COUNTY, MI

PHASE
SCHEMATIC DESIGN

ISSUANCES

#	DESCRIPTION	DATE
0	SCHEMATIC DESIGN	18JAN2024
1	FINAL SCHEMATIC	19MAR2024
2	REVISIONS	18APR2024

PROJ. #: 230038
COPYRIGHT © C2AE
NOT TO BE REPRODUCED OR DISTRIBUTED
WITHOUT PRIOR WRITTEN CONSENT
ALL RIGHTS RESERVED

Preliminary Plant Schedule

	Botanical Name	Common Name
Trees		
	<i>Juniperus virginiana</i> 'Taylor'	Taylor Eastern Red Cedar
	<i>Malus baccata</i> 'Halward'	Siberian Crabapple
Shrubs and Grasses		
	<i>Ammophila breviligulata</i>	Dune Grass
Perennials		
	<i>Amorpha canescens</i>	Lead Plant
	<i>Arctostaphylos uva-ursi</i>	Kinnickinnick
	<i>Echinacea purpurea</i> 'Kim's Knee High'	Dwarf Purple Coneflower





LANDSCAPE PLAN

SAUGATUCK PALETTE SIGN
ALLEGAN COUNTY, MI

PHASE

SCHEMATIC DESIGN

ISSUANCES

#	DESCRIPTION	DATE
0	SCHEMATIC DESIGN	04MAR2024
	FINAL SCHEMATIC	19MAR2024

PROJ. #:

COPYRIGHT© C2AE
NOT TO BE REPRODUCED OR DISTRIBUTED
WITHOUT PRIOR WRITTEN CONSENT
ALL RIGHTS RESERVED



LANDSCAPE PLAN

SAUGATUCK PALETTE SIGN
ALLEGAN COUNTY, MI

PHASE

SCHEMATIC DESIGN

ISSUANCES

#	DESCRIPTION	DATE
0	SCHEMATIC DESIGN	04MAR2024
	FINAL SCHEMATIC	19MAR2024

PROJ. #: 230439

COPYRIGHT© C2AE
NOT TO BE REPRODUCED OR DISTRIBUTED
WITHOUT PRIOR WRITTEN CONSENT
ALL RIGHTS RESERVED



Previously Developed Traffic Signal Rendering



BLUE STAR TRAIL - SAUGATUCK, MI

CONSTRUCTION COST ESTIMATES	ORIGINAL 10/12/21	REVISED 2/25/24	w/ ALT. ADD. OPTION 3	FINAL
SECTION 01 WASHINGTON ST. TO LAKE ST.	\$165,400	\$214,928		
SECTION 02 LAKE ST. TO MAPLE ST.	\$777,300	\$702,376		
SECTION 03 MAPLE ST. TO OLD ALLEGAN RD.	\$483,600	\$274,456		
SECTION 04 NORTH ST. TO HOLLAND ST.	\$398,700	\$585,371		
SECTION 01 *ADD* PALETTE SIGN IMPROVEMENTS		\$60,000	\$270,000	
SECTION 04 *ADD* CEMETERY/66TH ST. FIRE ACCESS TURNAROUND		\$75,000		
TOTAL COST ESTIMATE	\$1,825,000	\$1,912,131.00	\$2,122,131	

ENGINEERING FEES	JTD 3/1	%	REMAINING	BUDGET
23-0038 C2AE BLUE STAR TRAIL DESIGN & CONSTRUCTION				
PRELIMINARY DESIGN (T/M, NTE)	\$44,109	90%	\$4,901	\$49,010
CONSTRUCTION ENGINEERING* (T/M, ESTIMATE)	\$0	0%	\$89,896	\$89,896
TOPOGRAPHIC SURVEY (LS)	\$17,500	130%	(\$4,000)	\$13,500
ARCHAEOLOGICAL SURVEY (LS)	\$11,200	90%	\$1,244	\$12,444
TOTAL ENGINEERING FEES	\$72,809	44%	\$92,041	\$164,850

*INCLUDES SOIL BORINGS

FUNDING	GRANT	MATCH CONTRIBUTION	TOTAL
1. MDT TAP GRANT - CITY OF SAUGATUCK	\$1,344,000		\$1,344,000
2. MNRTF GRANT - CITY OF SAUGATUCK	\$300,000		\$300,000
3. MNRTF GRANT - SAUGATUCK TOWNSHIP	\$300,000		\$300,000
4. MATCHING FUNDS - FRIENDS OF BLUE STAR TRAIL		\$205,000.00	\$205,000
5. MATCHING FUNDS - CITY OF SAUGATUCK		\$50,000.00	\$50,000
6. MATCHING FUNDS - SAUGATUCK TOWNSHIP		\$10,000.00	\$10,000
7. MATCHING FUNDS - CITY OF DOUGLAS			
TOTAL FUNDING	\$1,944,000	\$265,000.00	\$2,209,000

CITY OF SAUGATUCK GENERAL SERVICES

PRELIMINARY COST OPINION	OPTION 1	OPTION 2	OPTION 3	FINAL
ROADWAY CONSTRUCTION	\$69,000	\$71,000	\$130,000	
TRAFFIC SIGNAL INSTALLATION	\$200,000	\$200,000	\$200,000	
MISC./SOFT COSTS	\$47,000	\$47,000	\$73,000	
TOTAL COST OPINION	\$316,000	\$318,000	\$403,000	

ENGINEERING FEES	JTD 3/1	%	REMAINING	BUDGET
23-0439 CITY OF SAUGATUCK GENERAL SERVICES 2024				
DESIGN	\$22,045	62%	\$13,255	\$35,300
BIDDING	\$0	0%	\$5,000	\$5,000
MEETINGS/SITE VISITS	\$0	0%	\$2,900	\$2,900
SUBCONSULTANTS	\$1,500	12%	\$11,100	\$12,600
DESIGN CONTINGENCY	\$0	0%	\$5,000	\$5,000
TOTAL ENGINEERING FEES	\$23,545	42%	\$32,255	\$55,800

November 2, 2021

Allegan County Road Commission
1308 Lincoln Road
Allegan, MI 49010

Attn: Mr. Craig Atwood, P.E.

Re: Traffic Analysis
Blue Star Highway at Old Allegan Road and Lake Street

HRC Job No. 20210784

Dear Mr. Atwood:

At your request, Hubbell, Roth & Clark, Inc. (HRC) has prepared a Traffic Analysis for two intersections on Blue Star Highway. The intersections are in the City of Saugatuck and Saugatuck Township, Allegan County.

The Study Intersections include:

- ≡ Blue Star Highway at Lake Street (City of Saugatuck)
- ≡ Blue Star Highway at Old Allegan Road (Saugatuck Township)

As part of the study, HRC has completed the following tasks for each intersection:

- ≡ Collected 24-hour turning movements counts at the study intersections and reviewed traffic volumes
 - HRC reviewed traffic volumes to determine if Blue Star Highway volumes were higher due to active construction on I-196, per the RFP.
- ≡ Conducted a Signal Warrant Analysis
- ≡ Conducted a crash analysis over a 5-year period
- ≡ Analyzed intersections for multi-modal traffic uses
- ≡ Summarized analysis in letter report to provide recommendations

Study Area

The study area includes two intersections: Blue Star Highway at Lake Street and Blue Star Highway at Old Allegan Road.

Blue Star Highway

- ≡ Allegan County Road (A-2)
- ≡ Classified as a minor arterial
- ≡ 2-lane undivided highway with auxiliary left turn lanes
- ≡ Speed limit:
 - Signed at 35 mph at Lake Street
 - Signed at 50 mph at Old Allegan Road

Lake Street

- ≡ Classified as a local road
- ≡ Signed at 25 mph.
- ≡ One right turn lane, one left turn lane, and one receiving lane
- ≡ Stop controlled on SB approach to Blue Star Highway

Bloomfield Hills
555 Hulet Drive
Bloomfield Hills,
MI 48302
248-454-6300

Delhi Township
2101 Aurelius Rd.
Ste. 2A
Holt, MI 48842
517-694-7760

Detroit
535 Griswold Street
Buhl Building
Suite 1650
Detroit, MI 48226-3698

Howell
105 W. Grand River
Howell, MI 48843
517-552-9199

Jackson
401 S. Mechanic St.
Suite B
Jackson, MI 49201
517-292-1295

Kalamazoo
834 King Highway
Suite 107
Kalamazoo, MI 49001
269-665-2005

Lansing
215 S. Washington SQ
Suite D
Lansing, MI 48933
517-292-1488

Old Allegan Road

- ≡ Classified as a local road west of Blue Star Highway, minor collector east of Blue Star Highway
- ≡ Speed limit:
 - Signed at 25 mph west of Blue Star Highway
 - Signed at 45 east of Blue Star Highway
- ≡ Both approaches to intersection have one left, thru, right lane, and one receiving lane
- ≡ Stop controlled on the EB and WB approaches to Blue Star Highway

The two study intersections are shown within a map of the study area in **Figure 1**.



Figure 1. Map of Study Area

Non-motorized Traffic Characteristics

Blue Star Highway at Lake Street

Non-motorized facilities at this intersection are characterized by facilities for bicyclists and pedestrians. A sidewalk exists on the north side of the west leg of Blue Star Highway leading to the west side of Lake Street. This path provides a connection between the cities of Douglas and Saugatuck. There is no pedestrian facility to facilitate travel along Blue Star Highway east of this intersection.

A westbound conventional bike lane is signed to begin on the east leg of this intersection. The eastbound conventional bike lane is signed to end on the east leg of the intersection, as the shoulder tapers to an inadequate width. The EB and WB bike lanes continue along Blue Star Hwy west of the intersection across the bridge over the Kalamazoo River. Ultimately, both bike lanes converge to a two-way separated bike lane as part of the Blue Star Trail.

Blue Star Highway at Old Allegan Road

There are facilities for non-motorized users at this intersection. A sidewalk exists on the north side of the west leg of Old Allegan Road. The sidewalk terminates approx. 65 ft. west of the intersection at a shared used path heading north along the west side of the north leg of Blue Star Highway, part of the Blue Star Trail. There are no pedestrian facilities at other legs of this intersection. There is an existing concrete sidewalk ramp and concrete pad across Old Allegan Road from the terminus of the sidewalk/shared use path. This may be employed for a future extension of the Blue Star Trail. There are no dedicated bicycle facilities, however, the shoulders are 8-10 ft. wide in this location.

US Bike Route 35 and Blue Star Trail

Currently, two designated non-motorized facilities exist along Blue Star Highway near or within the study intersections. US Bike Route (BR) 35 is routed through Douglas and Saugatuck as it travels from New Buffalo to Sault Ste. Marie. BR 35 travels along Blue Star Highway then turns north to Lake Street. Ultimately, BR 35 rejoins Blue Star Highway north of Old Allegan Road at Washington Road.

The Blue Star Trail is part of a plan to connect communities in Allegan County and surrounding counties using non-motorized facilities. The shared-use path on the north side of Old Allegan Road and Blue Star Highway, along with the two-way bike lane and shared use path south of the bridge over the Kalamazoo River are portions of the currently built Blue Star Trail. Friends of the Blue Star Trail indicate FY 2021 plans to connect the two previously described sections. Additionally, FY 2020 plans indicate a trail connection for the Old Allegan shared use path to BR 35 on the north side of the city of Saugatuck. Friends of the Blue Star Trail indicate that delays due to the pandemic pushed construction of the FY 2020 and FY 2021 Blue Star Trail extensions to 2023.

Existing Traffic Volumes

Turning movement counts were collected on September 8, 2021 at the two study intersections. Summaries of existing traffic volumes are provided in **Tables 1 and 2**. Turning movement counts are provided in **Attachment A**.

Table 1. Blue Star Highway at Lake St Existing Volumes (9/8/2021)

Time	Southbound	Eastbound	Westbound
	Lake St	Blue Star Hwy	Blue Star Hwy
12:00 AM	5	6	5
1:00 AM	0	8	4
2:00 AM	2	5	1
3:00 AM	1	4	1
4:00 AM	2	13	6
5:00 AM	5	43	12
6:00 AM	16	104	75
7:00 AM	40	306	297
8:00 AM	125	404	276
9:00 AM	100	358	348
10:00 AM	128	483	323
11:00 AM	174	490	352
12:00 PM	191	579	393
1:00 PM	208	530	402
2:00 PM	179	539	438
3:00 PM	241	691	411
4:00 PM	176	564	428
5:00 PM	171	584	414
6:00 PM	164	407	315
7:00 PM	186	304	247
8:00 PM	116	280	126
9:00 PM	85	133	66
10:00 PM	40	64	53
11:00 PM	5	8	9

Table 2. Blue Star Highway at Old Allegan Rd Existing Volumes (9/8/2021)

Time	Northbound	Southbound	Eastbound	Westbound
	Blue Star Hwy	Blue Star Hwy	Old Allegan Rd	Old Allegan Rd
12:00 AM	4	6	1	0
1:00 AM	6	4	2	1
2:00 AM	4	1	0	0
3:00 AM	4	1	1	0
4:00 AM	10	4	1	1
5:00 AM	45	10	1	2
6:00 AM	91	63	6	15
7:00 AM	213	273	25	76
8:00 AM	283	295	56	91
9:00 AM	281	316	33	77
10:00 AM	328	319	30	59
11:00 AM	329	343	41	72
12:00 PM	395	412	44	85
1:00 PM	362	370	63	70
2:00 PM	359	423	47	76
3:00 PM	488	378	102	83
4:00 PM	429	416	69	78
5:00 PM	396	417	67	68
6:00 PM	275	311	42	58
7:00 PM	213	232	53	45
8:00 PM	208	129	25	27
9:00 PM	100	71	54	10
10:00 PM	56	56	31	5
11:00 PM	8	12	5	1

A comparison was made using 2015 volumes taken at Blue Star Highway west of the Lake Street intersection. The 2015 volumes were collected from MDOT Transportation Data Management System and grown using a 1% growth rate to 2021 volumes.

$$\text{Growth Rate} = (1 + r)^n = 1.062$$

r = Annual Growth Rate (i.e. 1%)

n = Number of years (i.e. 6)

Using the growth rate of 1.062, the grown 2021 volumes were compared to actual 2021 volumes, and it was found that actual count volumes were, on average, 20% higher.

HRC received additional turning movement counts from Allegan County at Blue Star Highway and Wiley Road in Douglas in 2019. These counts were 3% higher than Old Allegan Road and 12% lower than Lake Street, respectively.

These percentages were utilized in signal warrant analysis to determine whether warrants were influenced by I-196 construction traffic. Given this information, HRC has determined that traffic volumes are higher than normal due to construction on I-196. Impacts of higher traffic volumes on signal warrant analysis is discussed in sections below.

Blue Star Highway Crash Analysis

HRC has reviewed the crashes at the two project intersections along Blue Star Highway. Crash data used for the five-year period was compiled using the Traffic Improvement Association Traffic Crash Analysis Tool (TCAT) website. For all intersection analyses, any crash within 250 ft. the intersection is considered an intersection crash.

Blue Star Highway at Lake Street

A summary of the crash characteristics for the intersection is shown in **Table 3**. A total of 15 crashes occurred in the five-year study period. All crashes were minor injury or property damage only.

Table 3. Blue Star Highway at Lake Street Crash Summary (2016-2020)

Crash Characteristic		2016	2017	2018	2019	2020	Total	%
Crash Severity	PDO	0	0	1	0	0	1	7%
	Injury C	0	0	3	6	5	14	93%
	Total	0	0	4	6	5	15	100%
Crash Type	Rear End	0	0	4	3	1	8	53%
	Rear End - Right Turn	0	0	0	1	3	4	27%
	Single Motor Vehicle	0	0	0	1	1	2	13%
	Other	0	0	0	1	0	1	7%
	Total	0	0	4	6	5	15	100%
Pavement Condition	Dry	0	0	3	5	5	13	87%
	Wet	0	0	1	1	0	2	13%
	Total	0	0	4	6	5	15	100%
Lighting Condition	Dark - Lighted	0	0	0	1	0	1	7%
	Dark - Unlighted	0	0	0	0	1	1	7%
	Daylight	0	0	4	5	4	13	87%
	Total	0	0	4	6	5	15	100%

The most frequent crash types were Rear End and Rear End - Right Turn, comprising 80% of crashes at the intersection. The next most frequent crash type was Single Motor Vehicle, representing 13% of the total. It is important to note that 10 of the 12 Rear End collisions (83%) occurred on the stop-controlled Lake Street approach at the intersection. MDOT indicates that installation of a Rural Box Span Signal is associated with up to a 40% reduction in all collision types other than Angle.

Blue Star Highway at Old Allegan Road

A summary of the crash characteristics for the intersection is shown in **Table 4**. A total of 12 crashes occurred in the five-year study period. The majority of crashes were minor injury or property damage only (75%). However, in the five-year period there were two (2) Level B Injury crashes and one (1) Level A Injury crash.

Level A Injury Crash:

- ≡ The Level A Injury crash occurred December 2018. A vehicle traveling WB on Old Allegan Road disregarded the stop sign at the intersection. The WB Vehicle then struck a vehicle traveling SB on Blue Star Highway. The driver of the SB vehicle was transported to the hospital for Level A injuries and stated they could not avoid the collision. The driver of the SB vehicle also stated they were impaired by medical marihuana prior to the collision. The WB driver was cited for disregarding a stop sign. The crash occurred under Dark – Lighted and Dry pavement conditions.

Level B Injury Crashes:

- ≡ The first Level B crash occurred July 2017. A vehicle traveling WB on Old Allegan Road did not stop at the stop sign and struck a vehicle heading NB on Blue Star Highway. The NB vehicle spun and flipped into the NW quadrant of the intersection. The driver of the WB vehicle stated they were looking at a phone for directions and did not react in time to stop and avoid the collision. The driver of the NB vehicle was transported to the hospital for Level B injuries. The crash occurred in the Daylight and under Dry pavement conditions.
- ≡ The second Level B crash occurred September 2020. A vehicle heading WB on Old Allegan Road disregarded

the stop sign and entered the intersection. The NB vehicle ultimately struck the WB vehicle on the left side as it crossed the intersection. The driver of the NB vehicle was transported to the hospital for Level B injuries. The crash occurred in the Daylight and under Dry pavement conditions.

Table 4. Blue Star Highway at Old Allegan Road Crash Summary (2016-2020)

Crash Characteristic		2016	2017	2018	2019	2020	Total	%
Crash Severity	PDO	1	0	3	3	1	8	67%
	Injury C	1	0	0	0	0	1	8%
	Injury B	0	1	0	0	1	2	17%
	Injury A	0	0	1	0	0	1	8%
	Total	2	1	4	3	2	12	100%
Crash Type	Angle	1	1	2	1	1	6	50%
	Backing	0	0	1	0	0	1	8%
	Rear End	1	0	1	2	1	5	42%
	Total	2	1	4	3	2	12	100%
Pavement Condition	Dry	1	1	4	2	2	10	83%
	Snow	0	0	0	1	0	1	8%
	Wet	1	0	0	0	0	1	8%
	Total	2	1	4	3	2	12	100%
Lighting Condition	Dark - Lighted	0	0	1	0	0	1	8%
	Dawn	0	0	0	1	0	1	8%
	Daylight	2	1	3	2	2	10	83%
	Total	2	1	4	3	2	12	100%

The most frequent crash type was Angle, comprising 50% of the total. The next most frequent crash type was Rear End, entailing 42% of all crashes in the study period. MDOT has noted that installation of a Rural Box Span Signal is associated with a 75% reduction in Angle crashes and a 40% reduction in all other crash types. Additional reductions in Angle and Rear End crashes of up to 30% can be realized through upgrades to signing and pavement markings.

Traffic Signal Warrant Analysis

Signal warrants for both intersections were considered to be in isolated communities of 10,000 population or less. Combining the populations of the City of Saugatuck, Village of Douglas, and Saugatuck Township equals approx. 5,500. Results of traffic signal warrants are provided in **Attachment C** as spreadsheets.

Blue Star Highway at Lake Street

HRC performed a signal warrant analysis for Blue Star Highway at Lake Street. Based on existing traffic volumes at the intersection, provided in **Table 1**, HRC found the intersection meets the requirements for various signal warrants.

A summary of the traffic warrant analysis is shown in **Table 5**. Note Warrant 9 related to rail crossings is not applicable.

Table 5. Blue Star Highway at Lake Street Signal Warrant Analysis

Traffic Signal Warrants		Met?
Warrant 1: Eight-Hour Vehicular Volume	Condition A	YES*
	Condition B	YES*
	Combination of A & B	N/A
Warrant 2: Four-Hour Vehicular Volume		YES*
Warrant 3: Peak Hour		YES*
Warrant 4: Pedestrian Volume		No
Warrant 5: School Crossing		No
Warrant 6: Coordinated Signal System		No
Warrant 7: Crash Experience		No
Warrant 8: Roadway Network		No
Warrant 9: Intersection Near a Grade Crossing		N/A

* Indicates that warrant would also be met considering grown 2015 volumes and adjusted 2019 volumes on Blue Star Hwy

The Blue Star Highway at Lake Street Intersection met the warrants for Warrant 1 (Condition A and B): Eight-Hour Vehicular Volume, Warrant 2: Four-Hour Vehicular Volume, and Warrant 3: Peak Hour Volume. There were not enough crashes susceptible to correction by signalization to meet Warrant 7, as a majority were Rear End type.

Left-Turn Analysis

HRC performed a left-turn phasing analysis and determined that a permissive-protected left turn phase is warranted for EB Blue Star Highway. Included in implementing the left turn phasing is installing a flashing yellow arrow signal and installing a doghouse signal for Lake St. The doghouse signal allows for a protected right turn phase on SB Lake Street while the EB protected left turn phase is active. Results are provided in **Attachment B**.

Blue Star Highway at Old Allegan Road

HRC conducted a signal warrant analysis for Blue Star Highway at Old Allegan Road. Based on existing traffic volumes, provided in **Table 2**, HRC found the intersection meets the requirements for various signal warrants.

A summary of the traffic warrant analysis is shown in **Table 6**. Note Warrant 9 related to rail crossings is not applicable.

Table 6. Blue Star Highway at Old Allegan Road Signal Warrant Analysis

Traffic Signal Warrants		Met?
Warrant 1: Eight-Hour Vehicular Volume	Condition A	No
	Condition B	YES*
	Combination of A & B	N/A
Warrant 2: Four-Hour Vehicular Volume		YES*
Warrant 3: Peak Hour		No*
Warrant 4: Pedestrian Volume		No
Warrant 5: School Crossing		No
Warrant 6: Coordinated Signal System		No
Warrant 7: Crash Experience		No
Warrant 8: Roadway Network		No
Warrant 9: Intersection Near a Grade Crossing		N/A

* Indicates that warrant would also be met considering grown 2015 volumes and adjusted 2019 volumes on Blue Star Hwy.

The Blue Star Hwy at Old Allegan Rd intersection met the warrants for Warrant 1 (Condition B): Eight-Hour Vehicular Volume and Warrant 2: Four-Hour Vehicular Volume. The results of the crash analysis from 2016-2020 found a total of 12 crashes. Over the five-year period, six (6) crashes, Angle, are correctable by signalization. However, a minimum of five (5) must occur in a 12-month period to meet Warrant 7.

Left-Turn Analysis

HRC performed a left-turn phasing analysis and determined left-turn phasing is not warranted. Results are provided in **Attachment B**. Note that there is currently a left turn lane on NB Blue Star Highway only. The left-turn phasing analysis did not indicate warranting on the other three intersection approaches.

Construction Impacts on Signal Warrants

As previously mentioned, the construction on I-196 has significantly increased traffic on Blue Star Highway. The signal warrant analyses were conducted considering three traffic volume frameworks:

- ≡ Actual 2021 counts
- ≡ 2015 MDOT counts grown to 2021 volumes
- ≡ 2021 counts adjusted proportionally by Allegan County 2019 counts

In all three scenarios, the warrants met by the actual 2021 counts are still met when traffic is adjusted to levels not impacted by construction. This provides evidence as to the accuracy of the signal warrants met by actual 2021 counts.

Conclusions and Recommendations

Results of the crash analysis indicate that the frequency and severity of crashes are low at the two study intersections. The majority of crashes at the Lake Street intersection were Rear End type and the majority at Old Allegan Rd were Angle.

HRC recommends that Allegan County Road Commission consider the upcoming Blue Star Trail extension when considering installation of signals. Increases to pedestrian and bicycle traffic at the study intersections could present new opportunities for signalization to improve multi-modal road user safety.

Blue Star Highway at Lake Street

Given that Lake Street meets multiple signal warrants, HRC recommends installing a traffic signal at this intersection. Volumes are sufficiently high at this intersection, and the signal could provide additional safety for bicyclists and pedestrians once multi-modal connections are completed. HRC recommends implementing the left-turn phasing and associate signals. HRC also recommends installing pedestrian signals on the north leg of the intersection, given upcoming extension of the multimodal trail. Non-motorized signals should be revisited after the trail extension is completed.

Multi-Modal Recommendations

- ≡ Upgrade pavement markings and install 24" stop bars
- ≡ Install high emphasis crosswalk marking to improve pedestrian safety
- ≡ Investigate continuing bike lanes where they terminate north of bridge
- ≡ Install green bicycle conflict pavement markings
- ≡ Install green bike boxes to allow opportunities for safe wayfinding to existing and future bicycle routes

Blue Star Highway at Old Allegan Road

Old Allegan Rd met two of the warrants for vehicular volume. The most common crash type at this intersection was Angle, noted by MDOT to experience a 75% reduction after signalization. The most severe crashes (Injury A and B) were all Angle type crashes. However, there were not enough crashes susceptible to correction to meet Warrant 7. As vehicular and multimodal volumes increase, there is a potential for greater frequency of crashes. The signal would provide an additional safety measure for all road users. Given these factors, HRC recommends installing a traffic signal at this intersection. HRC

also recommends installing pedestrian signals on the west leg of the intersection, located dependent on alignment of upcoming extension of the multimodal trail. Non-motorized signals should be revisited after the trail extension is completed.

Multi-Modal Recommendations

- ≡ Upgrade pavement markings and install 24" stop bars
- ≡ Install high emphasis crosswalk marking to improve pedestrian safety
- ≡ Install green bicycle conflict pavement markings
- ≡ Install green bike boxes to allow opportunities for safe wayfinding to existing and future bicycle routes

Alternative Recommendations

Should the county choose to not pursue installation of signals, HRC presents the following alternative recommendations for the intersections:

- ≡ Install dual 36" Stop (R1-1) signs
 - Install Cross Traffic Does Not Stop Plaques (W4-4) under 36" signs
 - Install Stop Ahead (W3-1) signs in appropriate locations
- ≡ Consider overhead flasher if crashes continue and/or increase, and with consideration of potential increasing bicycle volumes

HRC notes that a roundabout is recommended as a viable alternative at the intersection of Blue Star Highway and Old Allegan Road. Roundabouts are noted as a Proven Safety Countermeasure by the Federal Highway Administration (FHWA). The FHWA notes roundabouts lower speeds and reduce conflict points, thus reducing severe crashes. The configuration of a roundabout provides multiple opportunities to provide crossing locations for non-motorized traffic. Reducing speeds, lowering conflict points, and creating additional crossing locations benefits the safety of all road users. There is forest and little development surrounding this intersection, reducing the likelihood of major right-of-way conflicts from man-made obstruction or difficulty in potential acquisition. The geography of the intersection surroundings may create challenges to constructing a roundabout. The road surface of Blue Star Highway is elevated from ground level, with relatively steep foreslopes and guardrail. In addition, the alignment of this section of Blue Star Highway is on a high-speed horizontal curve. As mentioned above, the lack of development could allow ample opportunity to reconfigure the intersection. With the necessary reduction of speeds for a potential roundabout, the horizontal curve may be re-designed for a lower design speed. This may allow the county to take advantage of existing grades when building the new facility.

Multi-Modal Recommendations

- ≡ Upgrade pavement markings and install 24" stop bars
- ≡ Install high emphasis crosswalk marking to improve pedestrian safety
- ≡ Install green bicycle conflict pavement markings

If you have any questions or require any additional information, please contact the undersigned.

Very truly yours,

HUBBELL, ROTH & CLARK, INC.



Cole G. Villalobos, P.E., PTOE
Staff Engineer – Transportation Department

CGV/jdh

Attachments:

- A- Turning Movement Counts
- B- Left Turn Warrants Graphs
- C- Traffic Signal Warrants Spreadsheets

Enclosure

pc: HRC; File, Lia Michaels, Larry Hummel, Jordan Hankin

Attachment A: 24-Hour Turning Movement Counts

Lake Street and Blue Star HWY - TMC

Wed Sep 8, 2021

Full Length (11:30 PM-11:30 PM (+1))

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 871046, Location: 42.649657, -86.195827

Provided by: Hubbell, Roth & Clark, Inc.
555 Hulet Drive,
Bloomfield Hills, MI, 48302, US

Leg Direction	Lake St Southbound					Blue Star HWY Westbound					Blue Star HWY Eastbound					Int
	R	L	U	App	Ped*	R	T	U	App	Ped*	T	L	U	App	Ped*	
2021-09-08 11:00PM	1	0	0	1	0	2	7	0	9	0	2	1	0	3	0	13
2021-09-09 12:00AM	5	0	0	5	0	0	5	0	5	0	4	2	0	6	0	16
1:00AM	0	0	0	0	0	0	4	0	4	0	7	1	0	8	0	12
2:00AM	2	0	0	2	0	0	1	0	1	0	4	1	0	5	0	8
3:00AM	1	0	0	1	0	0	1	0	1	0	4	0	0	4	0	6
4:00AM	2	0	0	2	0	0	6	0	6	0	11	2	0	13	0	21
5:00AM	4	1	0	5	1	1	11	0	12	0	41	2	0	43	1	60
6:00AM	14	2	0	16	2	2	73	0	75	0	90	14	0	104	0	195
7:00AM	37	3	0	40	1	5	292	0	297	0	243	63	0	306	0	643
8:00AM	116	9	0	125	0	11	265	0	276	0	299	105	0	404	0	805
9:00AM	89	11	0	100	1	17	331	0	348	0	266	91	1	358	0	806
10:00AM	112	16	0	128	0	21	302	0	323	0	334	149	0	483	0	934
11:00AM	149	24	1	174	0	18	334	0	352	0	315	175	0	490	0	1016
12:00PM	178	13	0	191	0	28	365	0	393	0	404	175	0	579	0	1163
1:00PM	182	26	0	208	0	22	380	0	402	0	353	177	0	530	0	1140
2:00PM	166	13	0	179	0	27	411	0	438	0	372	167	0	539	0	1156
3:00PM	216	25	0	241	0	22	389	0	411	0	496	195	0	691	0	1343
4:00PM	161	15	0	176	1	25	403	0	428	0	410	154	0	564	0	1168
5:00PM	159	12	0	171	0	26	388	0	414	0	407	177	0	584	0	1169
6:00PM	144	20	0	164	1	14	301	0	315	0	272	135	0	407	0	886
7:00PM	167	19	0	186	0	13	234	0	247	0	208	96	0	304	0	737
8:00PM	102	14	0	116	0	8	118	0	126	0	212	68	0	280	0	522
9:00PM	73	12	0	85	0	5	61	0	66	0	105	27	1	133	0	284
10:00PM	35	5	0	40	0	4	49	0	53	0	53	11	0	64	0	157
11:00PM	4	1	0	5	1	0	9	0	9	0	5	3	0	8	0	22
Total	2119	241	1	2361	8	271	4740	0	5011	0	4917	1991	2	6910	1	14282
% Approach	89.8%	10.2%	0%	-	-	5.4%	94.6%	0%	-	-	71.2%	28.8%	0%	-	-	-
% Total	14.8%	1.7%	0%	16.5%	-	1.9%	33.2%	0%	35.1%	-	34.4%	13.9%	0%	48.4%	-	-
Motorcycles	21	0	0	21	-	1	27	0	28	-	42	16	0	58	-	107
% Motorcycles	1.0%	0%	0%	0.9%	-	0.4%	0.6%	0%	0.6%	-	0.9%	0.8%	0%	0.8%	-	0.7%
Lights	2045	239	1	2285	-	266	4572	0	4838	-	4737	1920	2	6659	-	13782
% Lights	96.5%	99.2%	100%	96.8%	-	98.2%	96.5%	0%	96.5%	-	96.3%	96.4%	100%	96.4%	-	96.5%
Single-Unit Trucks	14	2	0	16	-	3	73	0	76	-	76	20	0	96	-	188
% Single-Unit Trucks	0.7%	0.8%	0%	0.7%	-	1.1%	1.5%	0%	1.5%	-	1.5%	1.0%	0%	1.4%	-	1.3%
Articulated Trucks	6	0	0	6	-	0	25	0	25	-	30	3	0	33	-	64
% Articulated Trucks	0.3%	0%	0%	0.3%	-	0%	0.5%	0%	0.5%	-	0.6%	0.2%	0%	0.5%	-	0.4%
Buses	15	0	0	15	-	0	31	0	31	-	21	17	0	38	-	84
% Buses	0.7%	0%	0%	0.6%	-	0%	0.7%	0%	0.6%	-	0.4%	0.9%	0%	0.5%	-	0.6%
Bicycles on Road	18	0	0	18	-	1	12	0	13	-	11	15	0	26	-	57
% Bicycles on Road	0.8%	0%	0%	0.8%	-	0.4%	0.3%	0%	0.3%	-	0.2%	0.8%	0%	0.4%	-	0.4%
Pedestrians	-	-	-	-	5	-	-	-	-	0	-	-	-	-	1	-
% Pedestrians	-	-	-	-	62.5%	-	-	-	-	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	3	-	-	-	-	0	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	-	37.5%	-	-	-	-	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Lake Street and Blue Star HWY - TMC

Wed Sep 8, 2021

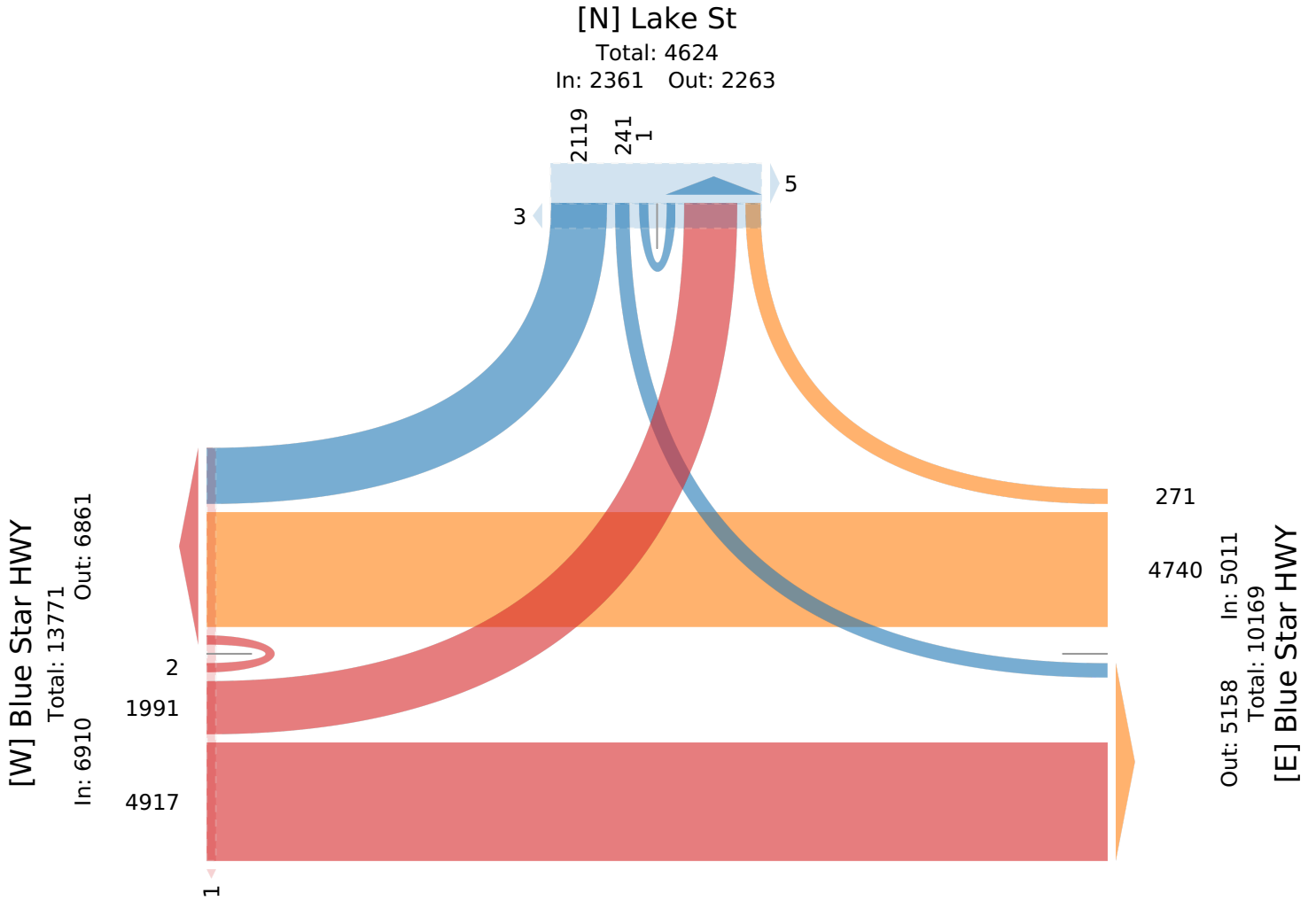
Full Length (11:30 PM-11:30 PM (+1))

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 871046, Location: 42.649657, -86.195827

Provided by: Hubbell, Roth & Clark, Inc.
555 Hulet Drive,
Bloomfield Hills, MI, 48302, US



Lake Street and Blue Star HWY - TMC

Thu Sep 9, 2021

AM Peak (Sep 09 2021 7:30AM - 8:30 AM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 871046, Location: 42.649657, -86.195827

Provided by: Hubbell, Roth & Clark, Inc.
555 Hulet Drive,
Bloomfield Hills, MI, 48302, US

Leg Direction	Lake St Southbound					Blue Star HWY Westbound					Blue Star HWY Eastbound					Int
	R	L	U	App	Ped*	R	T	U	App	Ped*	T	L	U	App	Ped*	
2021-09-09 7:30AM	14	0	0	14	1	1	97	0	98	0	63	12	0	75	0	187
7:45AM	10	2	0	12	0	3	112	0	115	0	119	30	0	149	0	276
8:00AM	22	2	0	24	0	1	75	0	76	0	117	35	0	152	0	252
8:15AM	42	3	0	45	0	6	73	0	79	0	79	32	0	111	0	235
Total	88	7	0	95	1	11	357	0	368	0	378	109	0	487	0	950
% Approach	92.6%	7.4%	0%	-	-	3.0%	97.0%	0%	-	-	77.6%	22.4%	0%	-	-	-
% Total	9.3%	0.7%	0%	10.0%	-	1.2%	37.6%	0%	38.7%	-	39.8%	11.5%	0%	51.3%	-	-
PHF	0.530	0.583	-	0.534	-	0.458	0.797	-	0.800	-	0.799	0.771	-	0.798	-	0.861
Motorcycles	0	0	0	0	-	0	0	0	0	-	0	2	0	2	-	2
% Motorcycles	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%	1.8%	0%	0.4%	-	0.2%
Lights	82	7	0	89	-	11	339	0	350	-	360	104	0	464	-	903
% Lights	93.2%	100%	0%	93.7%	-	100%	95.0%	0%	95.1%	-	95.2%	95.4%	0%	95.3%	-	95.1%
Single-Unit Trucks	0	0	0	0	-	0	9	0	9	-	9	0	0	9	-	18
% Single-Unit Trucks	0%	0%	0%	0%	-	0%	2.5%	0%	2.4%	-	2.4%	0%	0%	1.8%	-	1.9%
Articulated Trucks	2	0	0	2	-	0	3	0	3	-	3	1	0	4	-	9
% Articulated Trucks	2.3%	0%	0%	2.1%	-	0%	0.8%	0%	0.8%	-	0.8%	0.9%	0%	0.8%	-	0.9%
Buses	3	0	0	3	-	0	6	0	6	-	5	1	0	6	-	15
% Buses	3.4%	0%	0%	3.2%	-	0%	1.7%	0%	1.6%	-	1.3%	0.9%	0%	1.2%	-	1.6%
Bicycles on Road	1	0	0	1	-	0	0	0	0	-	1	1	0	2	-	3
% Bicycles on Road	1.1%	0%	0%	1.1%	-	0%	0%	0%	0%	-	0.3%	0.9%	0%	0.4%	-	0.3%
Pedestrians	-	-	-	-	1	-	-	-	-	0	-	-	-	-	0	-
% Pedestrians	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	-	0%	-	-	-	-	-	-	-	-	-	-	-

* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Lake Street and Blue Star HWY - TMC

Thu Sep 9, 2021

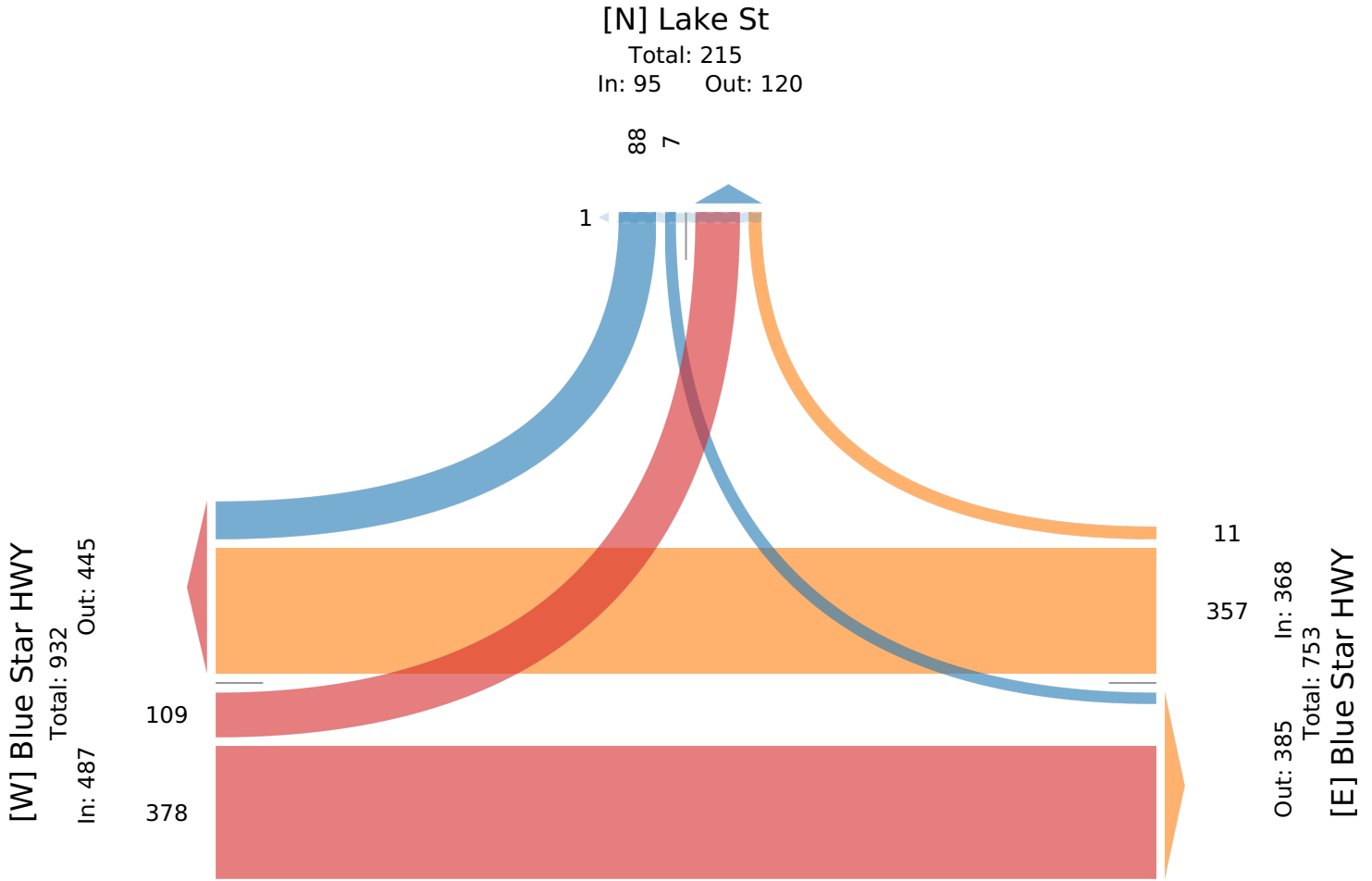
AM Peak (Sep 09 2021 7:30AM - 8:30 AM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 871046, Location: 42.649657, -86.195827

Provided by: Hubbell, Roth & Clark, Inc.
555 Hulet Drive,
Bloomfield Hills, MI, 48302, US



Lake Street and Blue Star HWY - TMC

Thu Sep 9, 2021

Midday Peak (Sep 09 2021 11:45AM - 12:45 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 871046, Location: 42.649657, -86.195827

Provided by: Hubbell, Roth & Clark, Inc.
555 Hulet Drive,
Bloomfield Hills, MI, 48302, US

Leg Direction	Lake St Southbound					Blue Star HWY Westbound					Blue Star HWY Eastbound					Int
	R	L	U	App	Ped*	R	T	U	App	Ped*	T	L	U	App	Ped*	
Time																
2021-09-09 11:45AM	45	7	0	52	0	6	99	0	105	0	81	48	0	129	0	286
12:00PM	31	4	0	35	0	8	104	0	112	0	101	38	0	139	0	286
12:15PM	53	1	0	54	0	4	90	0	94	0	97	51	0	148	0	296
12:30PM	46	2	0	48	0	9	89	0	98	0	113	47	0	160	0	306
Total	175	14	0	189	0	27	382	0	409	0	392	184	0	576	0	1174
% Approach	92.6%	7.4%	0%	-	-	6.6%	93.4%	0%	-	-	68.1%	31.9%	0%	-	-	-
% Total	14.9%	1.2%	0%	16.1%	-	2.3%	32.5%	0%	34.8%	-	33.4%	15.7%	0%	49.1%	-	-
PHF	0.821	0.500	-	0.870	-	0.750	0.918	-	0.913	-	0.873	0.897	-	0.903	-	0.963
Motorcycles	6	0	0	6	-	0	0	0	0	-	1	4	0	5	-	11
% Motorcycles	3.4%	0%	0%	3.2%	-	0%	0%	0%	0%	-	0.3%	2.2%	0%	0.9%	-	0.9%
Lights	166	13	0	179	-	27	367	0	394	-	383	174	0	557	-	1130
% Lights	94.9%	92.9%	0%	94.7%	-	100%	96.1%	0%	96.3%	-	97.7%	94.6%	0%	96.7%	-	96.3%
Single-Unit Trucks	1	1	0	2	-	0	8	0	8	-	7	4	0	11	-	21
% Single-Unit Trucks	0.6%	7.1%	0%	1.1%	-	0%	2.1%	0%	2.0%	-	1.8%	2.2%	0%	1.9%	-	1.8%
Articulated Trucks	1	0	0	1	-	0	7	0	7	-	0	1	0	1	-	9
% Articulated Trucks	0.6%	0%	0%	0.5%	-	0%	1.8%	0%	1.7%	-	0%	0.5%	0%	0.2%	-	0.8%
Buses	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0
% Buses	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%
Bicycles on Road	1	0	0	1	-	0	0	0	0	-	1	1	0	2	-	3
% Bicycles on Road	0.6%	0%	0%	0.5%	-	0%	0%	0%	0%	-	0.3%	0.5%	0%	0.3%	-	0.3%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Lake Street and Blue Star HWY - TMC

Thu Sep 9, 2021

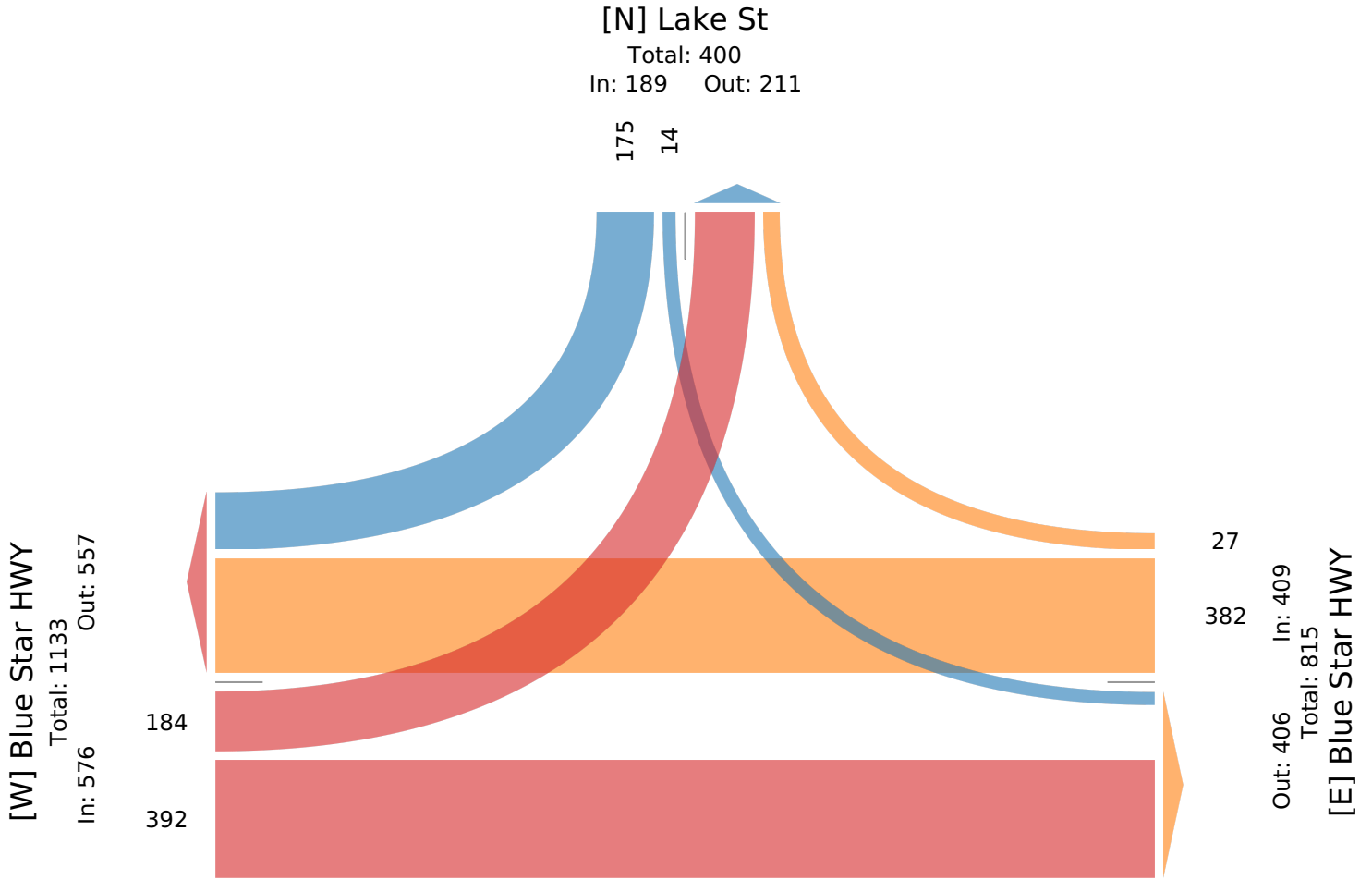
Midday Peak (Sep 09 2021 11:45AM - 12:45 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 871046, Location: 42.649657, -86.195827

Provided by: Hubbell, Roth & Clark, Inc.
555 Hulet Drive,
Bloomfield Hills, MI, 48302, US



Lake Street and Blue Star HWY - TMC

Thu Sep 9, 2021

PM Peak (Sep 09 2021 2:45PM - 3:45 PM) - Overall Peak Hour

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 871046, Location: 42.649657, -86.195827

Provided by: Hubbell, Roth & Clark, Inc.
555 Hulet Drive,
Bloomfield Hills, MI, 48302, US

Leg Direction	Lake St Southbound					Blue Star HWY Westbound					Blue Star HWY Eastbound					Int
	R	L	U	App	Ped*	R	T	U	App	Ped*	T	L	U	App	Ped*	
Time																
2021-09-09 2:45PM	49	2	0	51	0	6	126	0	132	0	85	43	0	128	0	311
3:00PM	47	4	0	51	0	5	97	0	102	0	160	56	0	216	0	369
3:15PM	66	5	0	71	0	7	106	0	113	0	148	50	0	198	0	382
3:30PM	61	8	0	69	0	6	91	0	97	0	104	41	0	145	0	311
Total	223	19	0	242	0	24	420	0	444	0	497	190	0	687	0	1373
% Approach	92.1%	7.9%	0%	-	-	5.4%	94.6%	0%	-	-	72.3%	27.7%	0%	-	-	-
% Total	16.2%	1.4%	0%	17.6%	-	1.7%	30.6%	0%	32.3%	-	36.2%	13.8%	0%	50.0%	-	-
PHF	0.845	0.594	-	0.852	-	0.857	0.848	-	0.855	-	0.775	0.848	-	0.794	-	0.896
Motorcycles	4	0	0	4	-	0	3	0	3	-	7	1	0	8	-	15
% Motorcycles	1.8%	0%	0%	1.7%	-	0%	0.7%	0%	0.7%	-	1.4%	0.5%	0%	1.2%	-	1.1%
Lights	216	19	0	235	-	23	406	0	429	-	474	185	0	659	-	1323
% Lights	96.9%	100%	0%	97.1%	-	95.8%	96.7%	0%	96.6%	-	95.4%	97.4%	0%	95.9%	-	96.4%
Single-Unit Trucks	1	0	0	1	-	1	7	0	8	-	7	2	0	9	-	18
% Single-Unit Trucks	0.4%	0%	0%	0.4%	-	4.2%	1.7%	0%	1.8%	-	1.4%	1.1%	0%	1.3%	-	1.3%
Articulated Trucks	0	0	0	0	-	0	0	0	0	-	6	0	0	6	-	6
% Articulated Trucks	0%	0%	0%	0%	-	0%	0%	0%	0%	-	1.2%	0%	0%	0.9%	-	0.4%
Buses	2	0	0	2	-	0	1	0	1	-	2	2	0	4	-	7
% Buses	0.9%	0%	0%	0.8%	-	0%	0.2%	0%	0.2%	-	0.4%	1.1%	0%	0.6%	-	0.5%
Bicycles on Road	0	0	0	0	-	0	3	0	3	-	1	0	0	1	-	4
% Bicycles on Road	0%	0%	0%	0%	-	0%	0.7%	0%	0.7%	-	0.2%	0%	0%	0.1%	-	0.3%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Lake Street and Blue Star HWY - TMC

Thu Sep 9, 2021

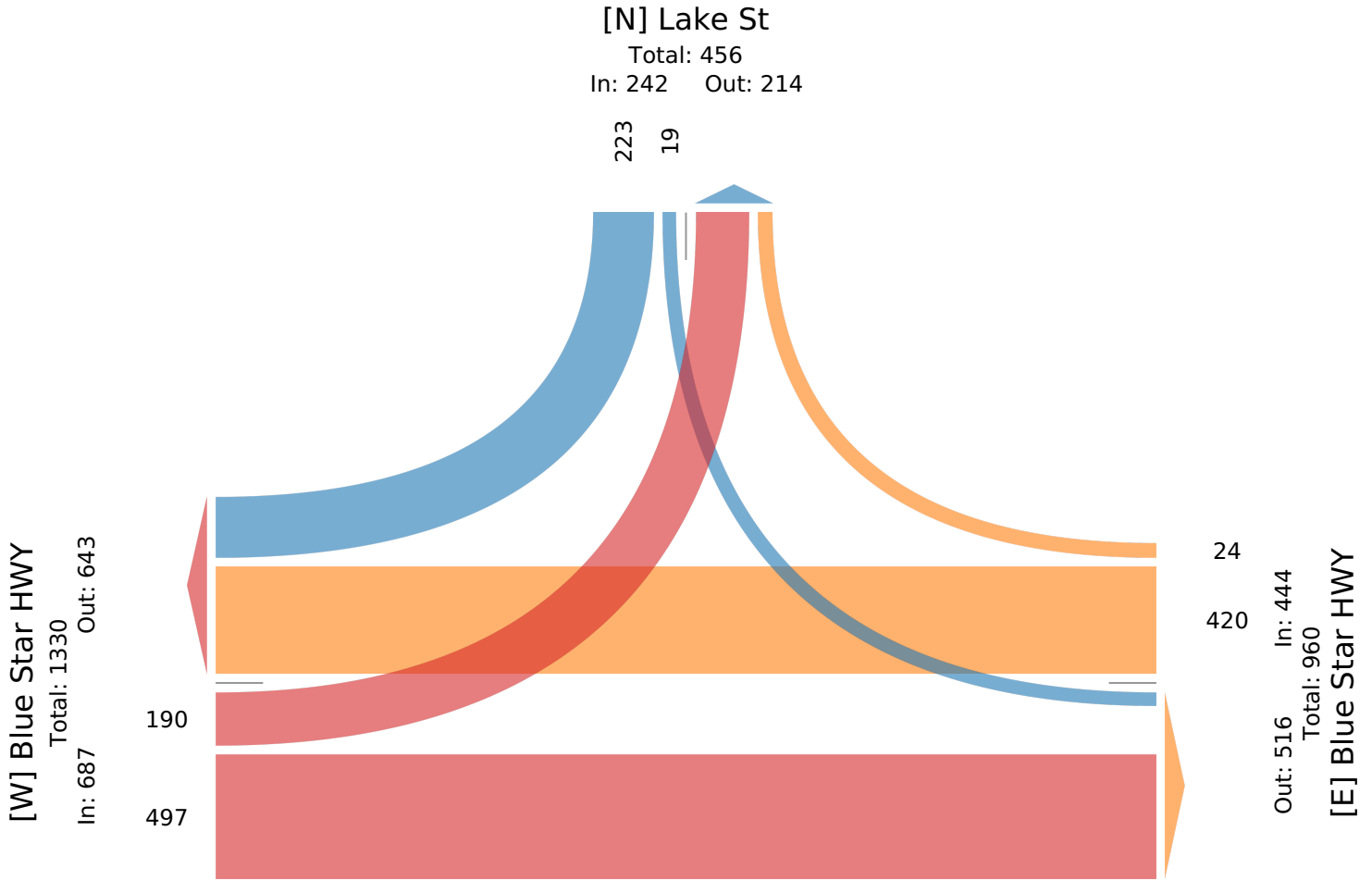
PM Peak (Sep 09 2021 2:45PM - 3:45 PM) - Overall Peak Hour

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 871046, Location: 42.649657, -86.195827

Provided by: Hubbell, Roth & Clark, Inc.
555 Hulet Drive,
Bloomfield Hills, MI, 48302, US



Old Allegan Street and Blue Star HWY - TMC

Provided by: Hubbell, Roth & Clark, Inc.

Wed Sep 8, 2021

Full Length (11:30 PM-11:30 PM (+1))

555 Hulet Drive,

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

Bloomfield Hills, MI, 48302, US

All Movements

ID: 871058, Location: 42.654775, -86.190445

Leg Direction	Blue Star HWY Southbound						Old Allegan St Westbound						Blue Star HWY Northbound						Old Allegan St Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2021-09-08 11:00PM	0	6	0	0	6	0	0	0	1	0	1	0	0	2	0	0	2	0	0	0	0	0	0	9	
2021-09-09 12:00AM	1	5	0	0	6	0	0	0	0	0	0	0	1	3	0	0	4	0	0	0	1	0	1	11	
1:00AM	0	4	0	0	4	0	0	0	1	0	1	0	0	6	0	0	6	0	0	1	0	2	0	13	
2:00AM	0	1	0	0	1	0	0	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	5	
3:00AM	1	0	0	0	1	0	0	0	0	0	0	0	0	4	0	0	4	0	0	1	0	0	0	6	
4:00AM	0	4	0	0	4	0	1	0	0	0	1	0	1	9	0	0	10	0	0	1	0	1	0	16	
5:00AM	0	10	0	0	10	0	0	2	0	0	2	0	0	44	0	1	45	0	0	1	0	1	0	58	
6:00AM	0	59	4	0	63	0	3	3	9	0	15	0	6	85	0	0	91	0	1	5	0	0	0	175	
7:00AM	25	237	11	0	273	0	8	19	49	0	76	0	18	180	15	0	213	0	5	10	10	0	25	587	
8:00AM	58	225	12	0	295	0	12	50	29	0	91	2	25	236	22	0	283	1	8	25	23	0	56	725	
9:00AM	20	281	15	0	316	1	17	18	42	0	77	0	29	244	8	0	281	2	7	7	19	0	33	707	
10:00AM	32	278	9	0	319	0	17	12	30	0	59	0	29	292	7	0	328	0	7	9	14	0	30	736	
11:00AM	26	302	15	0	343	0	20	21	31	0	72	0	29	291	9	0	329	0	8	15	18	0	41	785	
12:00PM	35	358	19	0	412	0	19	25	41	0	85	0	30	360	5	0	395	0	6	15	23	0	44	936	
1:00PM	24	336	10	0	370	0	20	21	29	0	70	0	37	315	10	0	362	0	15	18	30	0	63	865	
2:00PM	39	374	10	0	423	0	11	30	35	0	76	0	31	325	3	0	359	0	14	11	22	0	47	905	
3:00PM	35	323	20	0	378	0	17	33	33	0	83	0	49	414	24	1	488	0	21	45	36	0	102	1051	
4:00PM	36	359	21	0	416	0	22	26	30	0	78	0	33	389	7	0	429	0	7	24	38	0	69	992	
5:00PM	42	358	17	0	417	0	9	26	33	0	68	0	42	344	10	0	396	0	9	31	27	0	67	948	
6:00PM	27	269	15	0	311	0	10	21	27	0	58	0	27	239	9	0	275	0	7	18	17	0	42	686	
7:00PM	12	203	17	0	232	0	12	17	16	0	45	0	20	188	5	0	213	0	11	22	20	0	53	543	
8:00PM	13	107	9	0	129	0	10	8	9	0	27	0	26	180	2	0	208	0	1	14	10	0	25	389	
9:00PM	9	59	3	0	71	0	1	6	3	0	10	0	13	85	2	0	100	0	2	30	22	0	54	235	
10:00PM	6	48	2	0	56	0	0	2	3	0	5	0	3	52	1	0	56	0	2	11	18	0	31	148	
11:00PM	1	10	1	0	12	0	1	0	0	0	1	0	1	6	1	0	8	0	0	3	2	0	5	26	
Total	442	4216	210	0	4868	1	210	340	451	0	1001	2	450	4297	140	2	4889	3	131	315	353	0	799	2	11557
% Approach	9.1%	86.6%	4.3%	0%	-	-	21.0%	34.0%	45.1%	0%	-	-	9.2%	87.9%	2.9%	0%	-	-	16.4%	39.4%	44.2%	0%	-	-	-
% Total	3.8%	36.5%	1.8%	0%	42.1%	-	1.8%	2.9%	3.9%	0%	8.7%	-	3.9%	37.2%	1.2%	0%	42.3%	-	1.1%	2.7%	3.1%	0%	6.9%	-	-
Motorcycles	3	22	0	0	25	-	0	1	0	0	1	-	2	35	0	0	37	-	0	2	2	0	4	-	67
% Motorcycles	0.7%	0.5%	0%	0%	0.5%	-	0%	0.3%	0%	0%	0.1%	-	0.4%	0.8%	0%	0%	0.8%	-	0%	0.6%	0.6%	0%	0.5%	-	0.6%
Lights	425	4101	197	0	4723	-	206	328	429	0	963	-	429	4144	133	2	4708	-	119	306	339	0	764	-	11158
% Lights	96.2%	97.3%	93.8%	0%	97.0%	-	98.1%	96.5%	95.1%	0%	96.2%	-	95.3%	96.4%	95.0%	100%	96.3%	-	90.8%	97.1%	96.0%	0%	95.6%	-	96.5%
Single-Unit Trucks	8	58	2	0	68	-	1	8	10	0	19	-	9	75	2	0	86	-	4	4	8	0	16	-	189
% Single-Unit Trucks	1.8%	1.4%	1.0%	0%	1.4%	-	0.5%	2.4%	2.2%	0%	1.9%	-	2.0%	1.7%	1.4%	0%	1.8%	-	3.1%	1.3%	2.3%	0%	2.0%	-	1.6%
Articulated Trucks	3	22	2	0	27	-	1	1	1	0	3	-	2	23	0	0	25	-	0	0	1	0	1	-	56
% Articulated Trucks	0.7%	0.5%	1.0%	0%	0.6%	-	0.5%	0.3%	0.2%	0%	0.3%	-	0.4%	0.5%	0%	0%	0.5%	-	0%	0%	0.3%	0%	0.1%	-	0.5%
Buses	3	10	1	0	14	-	2	2	8	0	12	-	4	13	3	0	20	-	5	3	3	0	11	-	57
% Buses	0.7%	0.2%	0.5%	0%	0.3%	-	1.0%	0.6%	1.8%	0%	1.2%	-	0.9%	0.3%	2.1%	0%	0.4%	-	3.8%	1.0%	0.8%	0%	1.4%	-	0.5%
Bicycles on Road	0	3	8	0	11	-	0	0	3	0	3	-	4	7	2	0	13	-	3	0	0	0	3	-	30
% Bicycles on Road	0%	0.1%	3.8%	0%	0.2%	-	0%	0%	0.7%	0%	0.3%	-	0.9%	0.2%	1.4%	0%	0.3%	-	2.3%	0%	0%	0%	0.4%	-	0.3%
Pedestrians	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	3	-	-	-	-	-	2	-	-
% Pedestrians	-	-	-	-	0%	-	-	-	-	-	50.0%	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	100%	-	-	-	-	-	50.0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Old Allegan Street and Blue Star HWY - TMC

Wed Sep 8, 2021

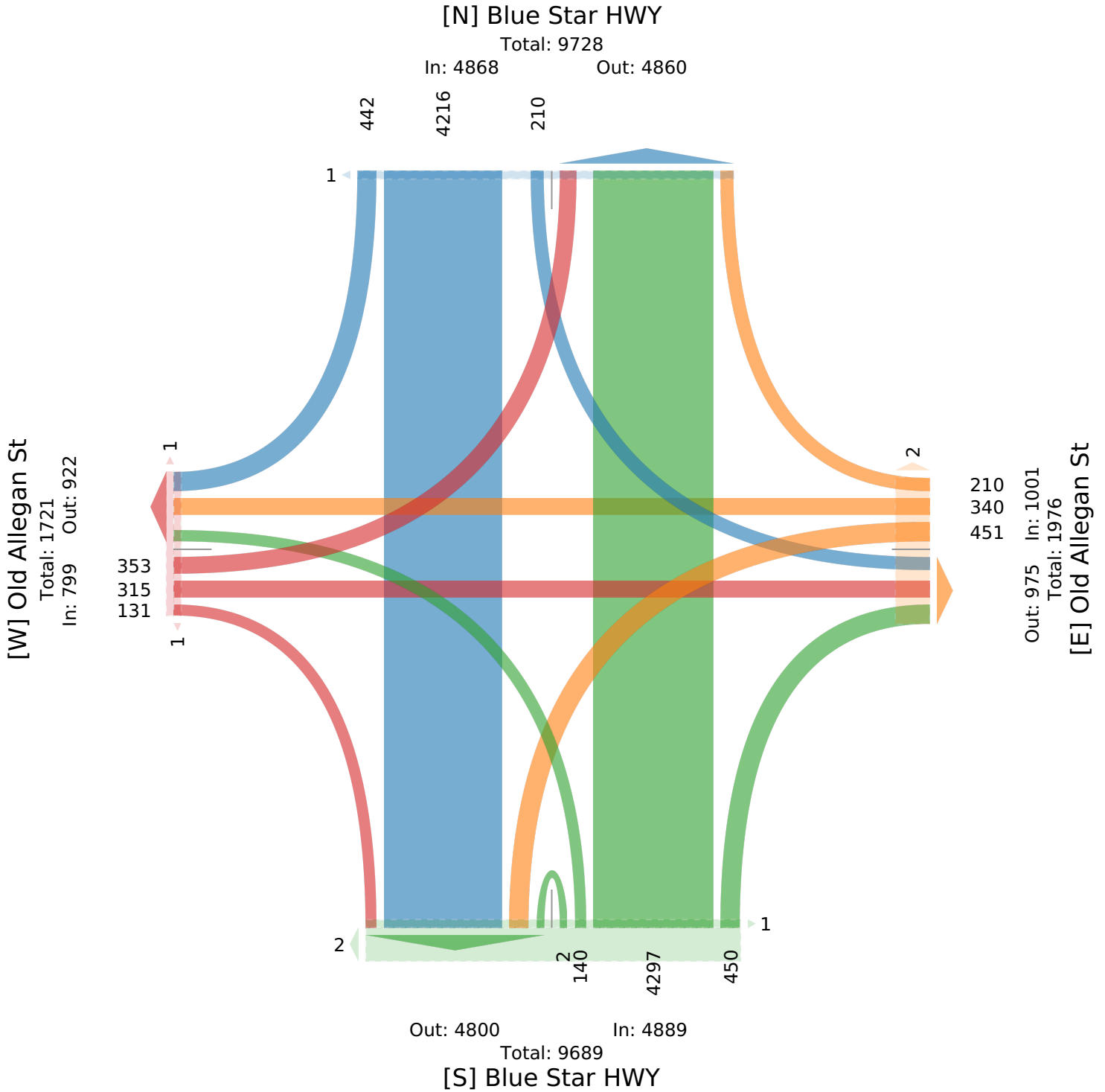
Full Length (11:30 PM-11:30 PM (+1))

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 871058, Location: 42.654775, -86.190445

Provided by: Hubbell, Roth & Clark, Inc.
555 Hulet Drive,
Bloomfield Hills, MI, 48302, US



Old Allegan Street and Blue Star HWY - TMC

Thu Sep 9, 2021

AM Peak (Sep 09 2021 7:30AM - 8:30 AM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 871058, Location: 42.654775, -86.190445

Provided by: Hubbell, Roth & Clark,

Inc.

555 Hulet Drive,

Bloomfield Hills, MI, 48302, US

Leg Direction	Blue Star HWY Southbound						Old Allegan St Westbound						Blue Star HWY Northbound						Old Allegan St Eastbound												
Time	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	Int
2021-09-09 7:30AM	7	78	2	0	87	0	2	3	18	0	23	0	4	44	2	0	50	0	0	2	2	0	4	0	0	2	2	0	4	0	164
7:45AM	11	88	4	0	103	0	5	9	17	0	31	0	10	85	9	0	104	0	3	4	1	0	8	0	3	4	1	0	8	0	246
8:00AM	15	60	4	0	79	0	2	16	9	0	27	0	15	75	12	0	102	0	3	9	8	0	20	0	3	9	8	0	20	0	228
8:15AM	26	60	0	0	86	0	5	28	9	0	42	0	4	63	6	0	73	0	4	9	8	0	21	0	4	9	8	0	21	0	222
Total	59	286	10	0	355	0	14	56	53	0	123	0	33	267	29	0	329	0	10	24	19	0	53	0	10	24	19	0	53	0	860
% Approach	16.6%	80.6%	2.8%	0%	-	-	11.4%	45.5%	43.1%	0%	-	-	10.0%	81.2%	8.8%	0%	-	-	18.9%	45.3%	35.8%	0%	-	-	-	-	-	-	-	-	-
% Total	6.9%	33.3%	1.2%	0%	41.3%	-	1.6%	6.5%	6.2%	0%	14.3%	-	3.8%	31.0%	3.4%	0%	38.3%	-	1.2%	2.8%	2.2%	0%	6.2%	-	-	-	-	-	-	-	-
PHF	0.567	0.813	0.625	-	0.862	-	0.700	0.500	0.736	-	0.732	-	0.550	0.782	0.604	-	0.788	-	0.625	0.667	0.594	-	0.631	-	-	-	-	-	-	-	0.873
Motorcycles	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0
% Motorcycles	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%
Lights	58	274	9	0	341	-	12	55	51	0	118	-	30	257	28	0	315	-	10	23	18	0	51	-	10	23	18	0	51	-	825
% Lights	98.3%	95.8%	90.0%	0%	96.1%	-	85.7%	98.2%	96.2%	0%	95.9%	-	90.9%	96.3%	96.6%	0%	95.7%	-	100%	95.8%	94.7%	0%	96.2%	-	100%	95.8%	94.7%	0%	96.2%	-	95.9%
Single-Unit Trucks	0	8	0	0	8	-	0	0	0	0	0	-	1	7	0	0	8	-	0	0	1	0	1	-	0	0	1	0	1	-	17
% Single-Unit Trucks	0%	2.8%	0%	0%	2.3%	-	0%	0%	0%	0%	0%	-	3.0%	2.6%	0%	0%	2.4%	-	0%	0%	5.3%	0%	1.9%	-	0%	0%	5.3%	0%	1.9%	-	2.0%
Articulated Trucks	1	3	1	0	5	-	1	0	0	0	1	-	1	0	0	0	1	-	0	0	0	0	0	-	0	0	0	0	0	-	7
% Articulated Trucks	1.7%	1.0%	10.0%	0%	1.4%	-	7.1%	0%	0%	0%	0.8%	-	3.0%	0%	0%	0%	0.3%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0.8%
Buses	0	1	0	0	1	-	1	1	2	0	4	-	1	2	1	0	4	-	0	1	0	0	1	-	0	1	0	0	1	-	10
% Buses	0%	0.3%	0%	0%	0.3%	-	7.1%	1.8%	3.8%	0%	3.3%	-	3.0%	0.7%	3.4%	0%	1.2%	-	0%	4.2%	0%	0%	1.9%	-	0%	4.2%	0%	0%	1.9%	-	1.2%
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	0	1	0	0	1	-	0	0	0	0	0	-	0	0	0	0	0	-	1
% Bicycles on Road	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0.4%	0%	0%	0.3%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0.1%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Old Allegan Street and Blue Star HWY - TMC

Thu Sep 9, 2021

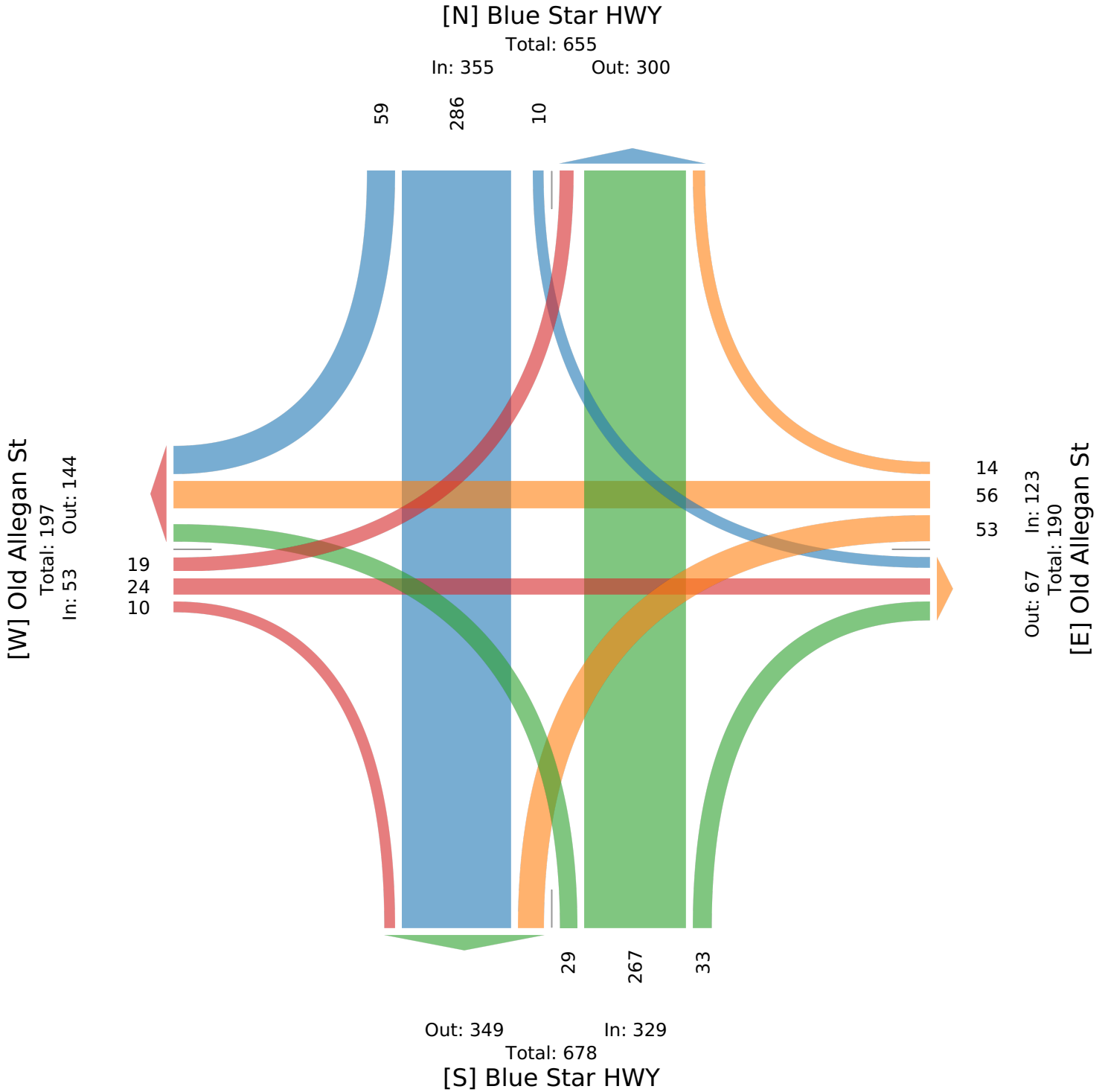
AM Peak (Sep 09 2021 7:30AM - 8:30 AM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 871058, Location: 42.654775, -86.190445

Provided by: Hubbell, Roth & Clark, Inc.
555 Hulet Drive,
Bloomfield Hills, MI, 48302, US



Old Allegan Street and Blue Star HWY - TMC

Thu Sep 9, 2021

Midday Peak (Sep 09 2021 12PM - 1 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 871058, Location: 42.654775, -86.190445

Provided by: Hubbell, Roth & Clark,

Inc.

555 Hulet Drive,

Bloomfield Hills, MI, 48302, US

Leg Direction	Blue Star HWY Southbound					Old Allegan St Westbound					Blue Star HWY Northbound					Old Allegan St Eastbound									
Time	R	T	L	U	App Ped*	R	T	L	U	App Ped*	R	T	L	U	App Ped*	R	T	L	U	App Ped*	Int				
2021-09-09 12:00PM	5	95	5	0	105	0	3	3	12	0	18	0	10	91	3	0	104	0	1	4	4	0	9	0	236
12:15PM	11	89	4	0	104	0	3	5	10	0	18	0	8	86	2	0	96	0	0	7	7	0	14	0	232
12:30PM	6	92	4	0	102	0	9	8	8	0	25	0	4	92	0	0	96	0	4	3	5	0	12	0	235
12:45PM	13	82	6	0	101	0	4	9	11	0	24	0	8	91	0	0	99	0	1	1	7	0	9	0	233
Total	35	358	19	0	412	0	19	25	41	0	85	0	30	360	5	0	395	0	6	15	23	0	44	0	936
% Approach	8.5%	86.9%	4.6%	0%	-	-	22.4%	29.4%	48.2%	0%	-	-	7.6%	91.1%	1.3%	0%	-	-	13.6%	34.1%	52.3%	0%	-	-	-
% Total	3.7%	38.2%	2.0%	0%	44.0%	-	2.0%	2.7%	4.4%	0%	9.1%	-	3.2%	38.5%	0.5%	0%	42.2%	-	0.6%	1.6%	2.5%	0%	4.7%	-	-
PHF	0.673	0.942	0.792	-	0.981	-	0.528	0.694	0.854	-	0.850	-	0.750	0.973	0.417	-	0.945	-	0.313	0.536	0.821	-	0.768	-	0.993
Motorcycles	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	0	0
% Motorcycles	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	0%
Lights	35	346	18	0	399	-	19	24	38	0	81	-	29	346	5	0	380	-	5	15	21	0	41	-	901
% Lights	100%	96.6%	94.7%	0%	96.8%	-	100%	96.0%	92.7%	0%	95.3%	-	96.7%	96.1%	100%	0%	96.2%	-	83.3%	100%	91.3%	0%	93.2%	-	96.3%
Single-Unit Trucks	0	9	1	0	10	-	0	1	1	0	2	-	0	9	0	0	9	-	0	0	2	0	2	-	23
% Single-Unit Trucks	0%	2.5%	5.3%	0%	2.4%	-	0%	4.0%	2.4%	0%	2.4%	-	0%	2.5%	0%	0%	2.3%	-	0%	0%	8.7%	0%	4.5%	-	2.5%
Articulated Trucks	0	2	0	0	2	-	0	0	1	0	1	-	0	2	0	0	2	-	0	0	0	0	0	-	5
% Articulated Trucks	0%	0.6%	0%	0%	0.5%	-	0%	0%	2.4%	0%	1.2%	-	0%	0.6%	0%	0%	0.5%	-	0%	0%	0%	0%	0%	-	0.5%
Buses	0	1	0	0	1	-	0	0	1	0	1	-	1	1	0	0	2	-	0	0	0	0	0	-	4
% Buses	0%	0.3%	0%	0%	0.2%	-	0%	0%	2.4%	0%	1.2%	-	3.3%	0.3%	0%	0%	0.5%	-	0%	0%	0%	0%	0%	-	0.4%
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	0	2	0	0	2	-	1	0	0	0	1	-	3
% Bicycles on Road	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0.6%	0%	0%	0.5%	-	16.7%	0%	0%	0%	2.3%	-	0.3%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Old Allegan Street and Blue Star HWY - TMC

Thu Sep 9, 2021

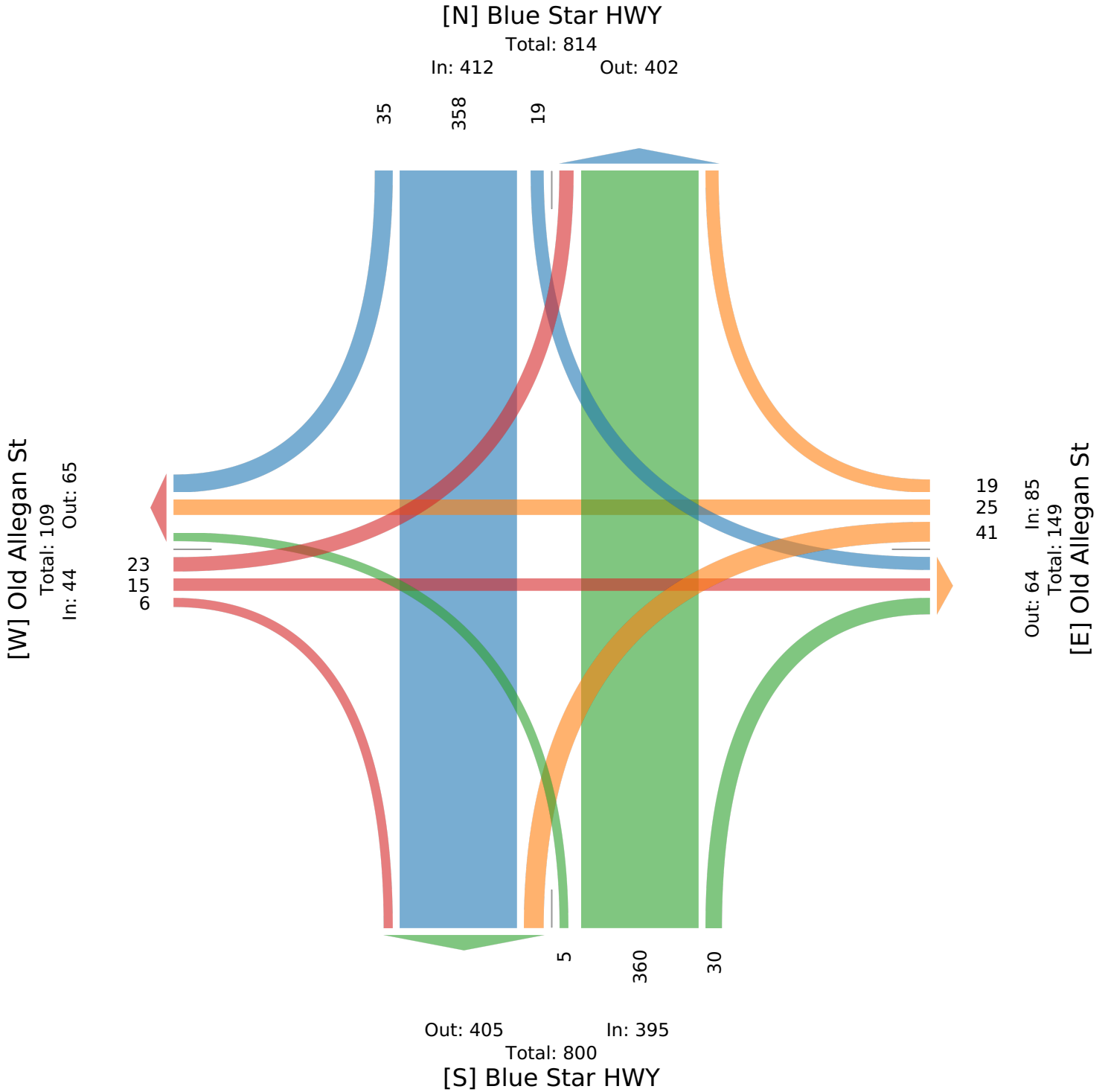
Midday Peak (Sep 09 2021 12PM - 1 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 871058, Location: 42.654775, -86.190445

Provided by: Hubbell, Roth & Clark, Inc.
555 Hulet Drive,
Bloomfield Hills, MI, 48302, US



Old Allegan Street and Blue Start HWY - TMC

Thu Sep 9, 2021

PM Peak (Sep 09 2021 2:45PM - 3:45 PM) - Overall Peak Hour

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 871058, Location: 42.654775, -86.190445

Provided by: Hubbell, Roth & Clark, Inc.

555 Hulet Drive, Bloomfield Hills, MI, 48302, US

Leg Direction	Blue Star HWY Southbound						Old Allegan St Westbound						Blue Star HWY Northbound						Old Allegan St Eastbound						
Time	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	Int
2021-09-09 2:45PM	13	110	5	0	128	0	3	8	14	0	25	0	8	64	1	0	73	0	5	2	7	0	14	0	240
3:00PM	11	90	4	0	105	0	4	8	5	0	17	0	14	103	15	1	133	0	3	7	5	0	15	0	270
3:15PM	8	88	2	0	98	0	6	9	6	0	21	0	15	124	8	0	147	0	8	23	14	0	45	0	311
3:30PM	5	68	9	0	82	0	3	5	11	0	19	0	12	100	1	0	113	0	8	11	8	0	27	0	241
Total	37	356	20	0	413	0	16	30	36	0	82	0	49	391	25	1	466	0	24	43	34	0	101	0	1062
% Approach	9.0%	86.2%	4.8%	0%	-	-	19.5%	36.6%	43.9%	0%	-	-	10.5%	83.9%	5.4%	0.2%	-	-	23.8%	42.6%	33.7%	0%	-	-	-
% Total	3.5%	33.5%	1.9%	0%	38.9%	-	1.5%	2.8%	3.4%	0%	7.7%	-	4.6%	36.8%	2.4%	0.1%	43.9%	-	2.3%	4.0%	3.2%	0%	9.5%	-	-
PHF	0.712	0.814	0.528	-	0.815	-	0.667	0.833	0.708	-	0.870	-	0.817	0.786	0.400	0.250	0.795	-	0.750	0.467	0.607	-	0.561	-	0.852
Motorcycles	0	2	0	0	2	-	0	0	0	0	0	-	0	4	0	0	4	-	0	1	0	0	1	-	7
% Motorcycles	0%	0.6%	0%	0%	0.5%	-	0%	0%	0%	0%	0%	-	0%	1.0%	0%	0%	0.9%	-	0%	2.3%	0%	0%	1.0%	-	0.7%
Lights	36	346	18	0	400	-	16	29	34	0	79	-	46	377	24	1	448	-	24	39	34	0	97	-	1024
% Lights	97.3%	97.2%	90.0%	0%	96.9%	-	100%	96.7%	94.4%	0%	96.3%	-	93.9%	96.4%	96.0%	100%	96.1%	-	100%	90.7%	100%	0%	96.0%	-	96.4%
Single-Unit Trucks	1	5	1	0	7	-	0	1	0	0	1	-	2	6	0	0	8	-	0	2	0	0	2	-	18
% Single-Unit Trucks	2.7%	1.4%	5.0%	0%	1.7%	-	0%	3.3%	0%	0%	1.2%	-	4.1%	1.5%	0%	0%	1.7%	-	0%	4.7%	0%	0%	2.0%	-	1.7%
Articulated Trucks	0	2	0	0	2	-	0	0	0	0	0	-	1	3	0	0	4	-	0	0	0	0	0	-	6
% Articulated Trucks	0%	0.6%	0%	0%	0.5%	-	0%	0%	0%	0%	0%	-	2.0%	0.8%	0%	0%	0.9%	-	0%	0%	0%	0%	0%	-	0.6%
Buses	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1	0	0	1	-	1
% Buses	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	2.3%	0%	0%	1.0%	-	0.1%
Bicycles on Road	0	1	1	0	2	-	0	0	2	0	2	-	0	1	1	0	2	-	0	0	0	0	0	-	6
% Bicycles on Road	0%	0.3%	5.0%	0%	0.5%	-	0%	0%	5.6%	0%	2.4%	-	0%	0.3%	4.0%	0%	0.4%	-	0%	0%	0%	0%	0%	-	0.6%
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Old Allegan Street and Blue Star HWY - TMC

Thu Sep 9, 2021

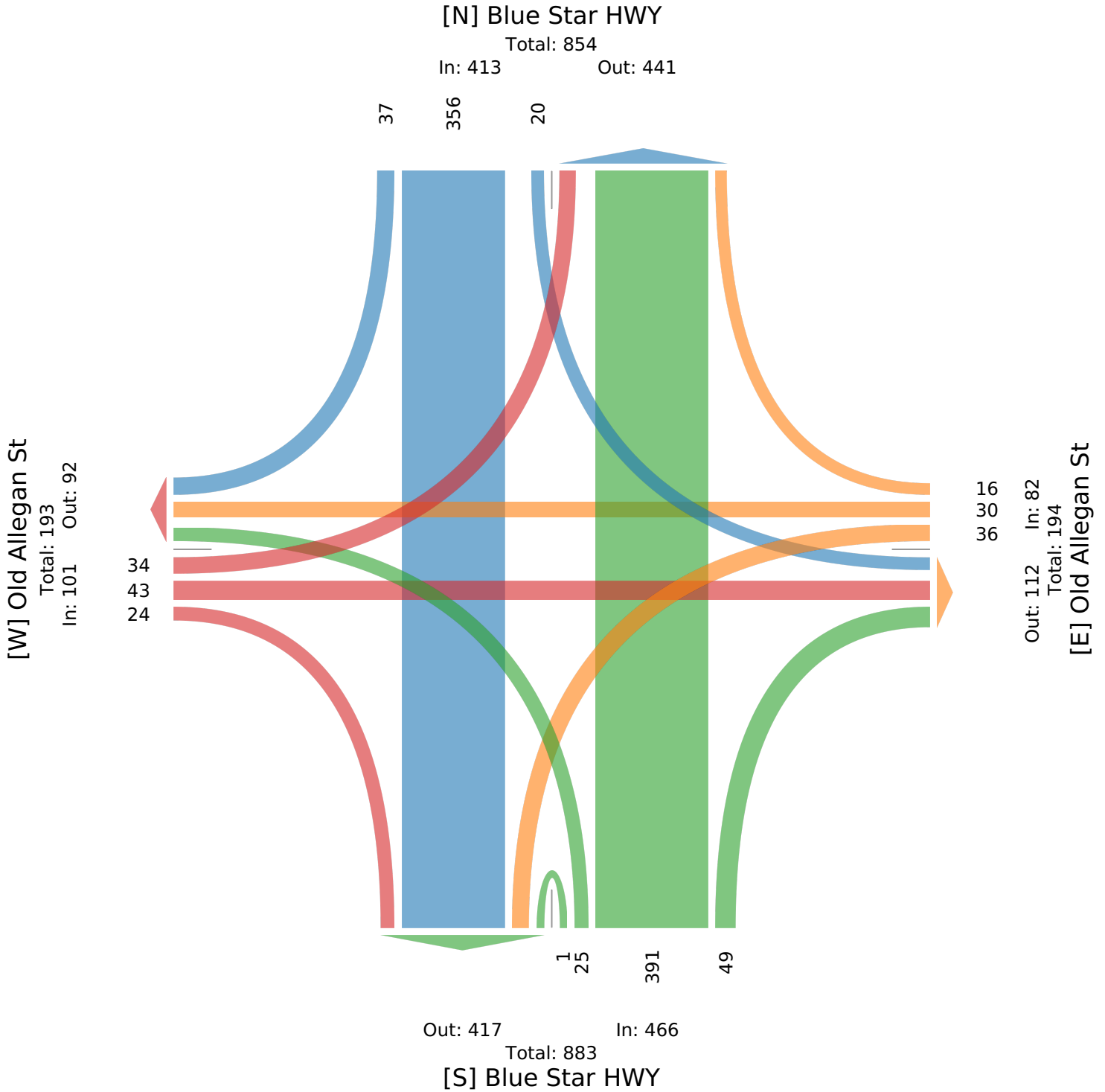
PM Peak (Sep 09 2021 2:45PM - 3:45 PM) - Overall Peak Hour

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 871058, Location: 42.654775, -86.190445

Provided by: Hubbell, Roth & Clark, Inc.
555 Hulet Drive,
Bloomfield Hills, MI, 48302, US



Attachment B: Left Turn Warrant Charts

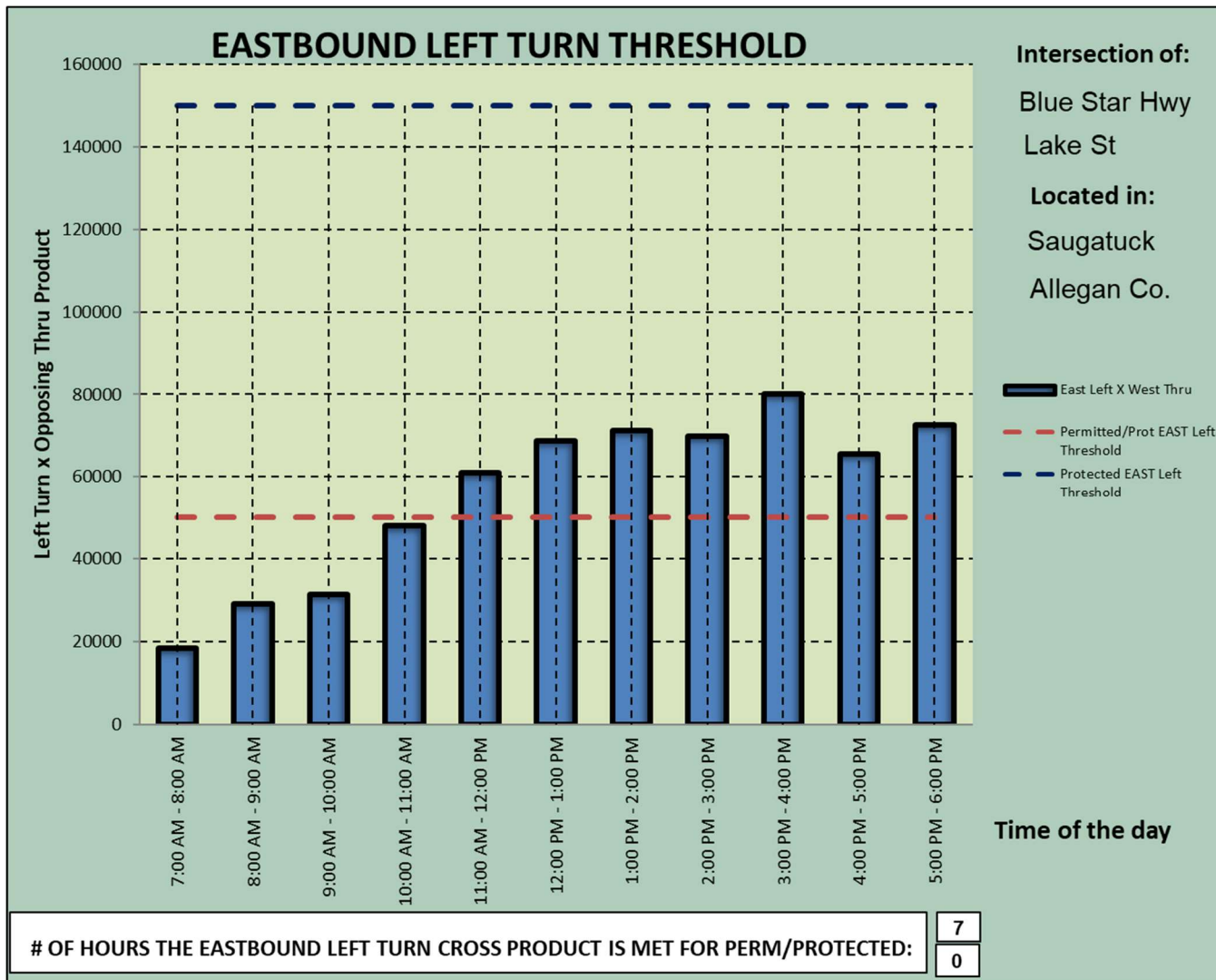


Figure C-1. Left Turn Threshold Graph for Eastbound Blue Star Highway at Lake Street

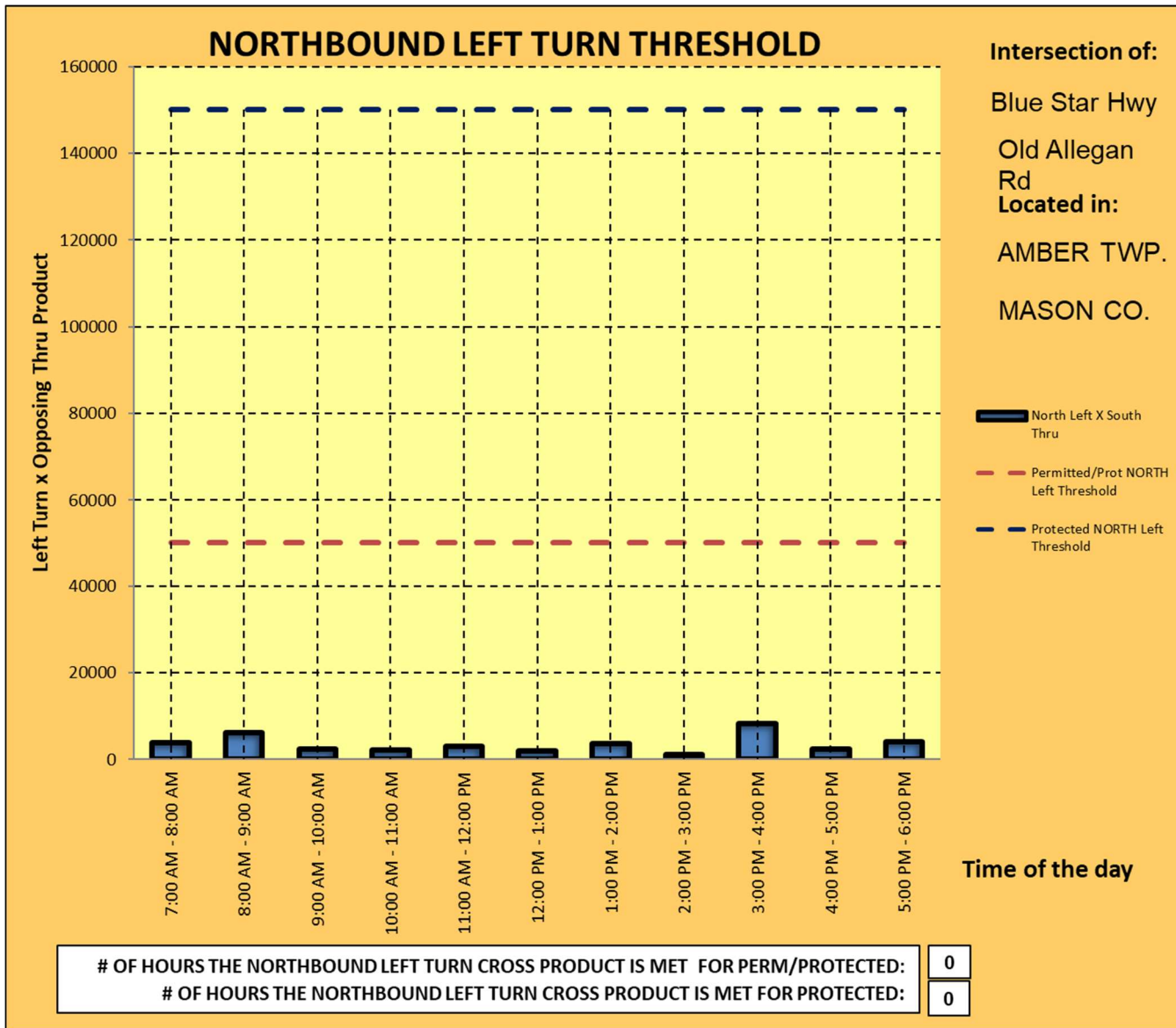


Figure C-2. Left Turn Threshold Graph for Eastbound Blue Star Highway at Lake Street

Attachment C: Signal Warrant Analysis Spreadsheets

Attached separately as Excel spreadsheets

November 13, 2019

Mr. John Adams, President
Friends of the Blue Star Trail
jaquincy48@gmail.com

RE: Blue Star Trail – Status of Current Options

Dear John,

As requested, below is a summary of the Blue Star Trail options that were presented to Saugatuck City council on July 18, 2019. These are the last options that were developed prior to the City meeting with representatives from Douglas and Saugatuck Township to lay out plans for an agency-led project. Following the two options presented in July is a summary of ideas that have been discussed since July 18 in response to concerns raised by the Fire Department.

Option 1D (aka “the sidewalk/road option”)

Part 1 (Washington Street to Kalamazoo River Bridge): The concept used in Douglas south of Washington Street would be extended approximately 200 feet, using a raised curb to place the trail within the existing roadway while maintaining the left turn lane onto Main Street. At the end of the left turn lane taper, the raised curb is replaced with a 5-foot buffer area, producing a 2-lane cross section with a wide northbound shoulder, southbound shoulder/buffer and the non-motorized trail within the curb-to-curb width. We note the following advantages and disadvantages:

- The transition between the new trail and the existing one in Douglas would be a relatively simple one. Southbound Blue Star Highway (BSH) driver confusion should be reduced.
- The existing island would be removed. This could increase driver confusion for vehicles turning south on BSH from Washington Street. This would be mitigated with pavement markings and enhanced signage.
- Using a combination curb and buffer preserves a width for vehicular traffic equivalent to 3 lanes. However, unlike the current layout, emergency responders would require motorists to utilize the shoulders and clear the center turn lane to navigate this portion of the corridor.
- There are no physical barriers between motorized and non-motorized traffic north of the raised curb. This could be mitigated with rumble strips, pavement markings and signage. A series of movable planters or similar could be used to provide more visual delineation of the trail, however, the layout would need to consider emergency response impacts.
- The raised curb would need to be considered during winter maintenance activities.

Part 2 (Kalamazoo River Bridge): In this option, the cross section at the north end of Part 1 is carried across the bridge (14’ trail, 5’ buffer/shoulder, 11’ SB lane, 11’ NB lane, 5’ shoulder). We note the following advantages and disadvantages:

- This option provides an equivalent of 3 lanes of width.
- Similar to Part 1, emergency responders would require motorists to utilize the shoulders to navigate this portion of the corridor.
- There are no physical barriers between motorized and non-motorized traffic north of the raised curb. This could be mitigated with rumble strips (though not ideal on the bridge deck), pavement markings

and signage. A series of movable planters or similar could be used to provide more visual delineation of the trail, however, the layout would need to consider emergency response impacts.

- Without physical barriers, winter maintenance would be largely unchanged.

Part 3 (Kalamazoo River Bridge to Lake Street): North of the bridge, the trail transitions from being located completely within the curbed width to completely outside the curbed width, merging with the existing sidewalk. The widened sidewalk continues behind the existing tree line on the west side of BSH, requiring slope improvements and fencing. We note the following advantages and disadvantages:

- This option provides an equivalent of 3 lanes of width.
- Similar to Parts 1 & 2, emergency responders would require motorists to utilize the shoulders to navigate the portion south of the transition.
- South of the transition, there are no physical barriers between motorized and non-motorized traffic north of the raised curb. This could be mitigated with rumble, pavement markings and signage. A series of movable planters or similar could be used to provide more visual delineation of the trail, however, the layout would need to consider emergency response impacts.
- At the transition, southbound driver confusion will need to be carefully mitigated with pavement markings, rumble strips and signage (and potentially planters or similar).
- This option has the advantage of maintaining the existing lanes at Lake Street.
- Materials used for slope reinforcement and fencing would be selected based on City input on their longevity, aesthetics and maintenance requirements.
- Winter maintenance would be largely unchanged south of the transition. North of the transition, there would be more surface area to maintain.

Part 4 (Lake Street Intersection): The trail crosses Lake Street similar to a traditional crosswalk at a controlled intersection. The intersection could either remain stop-controlled or be upgraded to signal control, depending on City and Fire Department operational preference. On the north side of the intersection, the trail would maintain clearance around the existing palette sign for landscaping. Beyond that, it would transition into the southbound shoulder area, providing the northbound lane, clear auxiliary area, southbound lane buffer area and trail. We note the following advantages and disadvantages:

- The Lake Street stop bar would be moved back from the intersection. Lake Street drivers would pull forward onto the trail after checking that it is clear to gain sight distance on BSH. This is not an uncommon scenario for crosswalks at skewed intersections.
- The existing wide southbound shoulder currently functions as a right turn lane, of sorts. It would be eliminated under this option.
- Winter maintenance would be largely unchanged.

Part 5 (Lake Street to Maple Street): The trail continues north, utilizing a portion of the existing southbound shoulder area to reduce the slope reinforcement/retaining wall and fencing required. At least part of the buffer area would likely be grass to provide better separation and a space for signage. At Maple Street, the existing ditch would be enclosed to allow the trail to transition out of the roadway and cross Maple Street in a typical crosswalk configuration. We note the following advantages and disadvantages:

- This option can provide an equivalent of 3 lanes of width, depending on the exact positioning of the trail and layout of the buffer area.
- Emergency responders would require motorists to utilize the shoulders to navigate this portion of the corridor.
- Materials used for slope reinforcement and fencing would be selected based on City input on their longevity, aesthetics and maintenance requirements.
- Winter maintenance would need to consider the additional width and snow storage areas but would otherwise be largely unchanged.

Option 2F (aka “the road option”)

Parts 1, 2 and 5 are the same as in Option 1D.

Part 3 (Kalamazoo River Bridge to Lake Street): North of the bridge, the trail would continue within the curbed roadway with 2 lanes and shoulder/buffer areas. A raised curb would replace the buffer where the northbound left turn lane onto Lake Street begins. We note the following advantages and disadvantages:

- This option provides an equivalent of 3 lanes of width.
- Emergency responders would require motorists to utilize the shoulders and clear the left turn lane to navigate this portion of the corridor.
- Southbound driver confusion would be reduced from Option 1D. The raised curb would align southbound traffic such that no lateral movement would be required where it transitions to the 5' buffer.
- The southbound acceleration lane at Lake Street would be eliminated.
- Slope improvements and fencing would not be required.
- The raised curb would need to be considered during winter maintenance activities.

Part 4 (Lake Street Intersection): The curb on the south side of the intersection would be realigned to allow the trail to connect to the existing sidewalk and then cross Lake Street similar to a traditional crosswalk at a controlled intersection. The intersection could either remain stop-controlled or be upgraded to signal control, depending on City and Fire Department operational preference. The north side of the intersection is the same as in Option 1D. We note the following advantages and disadvantages:

- The Lake Street stop bar would be moved back from the intersection. Lake Street drivers would pull forward onto the trail after checking that it is clear to gain sight distance on BSH. This is not an uncommon scenario for crosswalks at skewed intersections.
- The existing wide southbound shoulder currently functions as a right turn lane, of sorts. It would be eliminated under this option.
- The raised curb would need to be considered during winter maintenance activities.

Other Ideas

Split Trail: The AASHTO-required clear width of 14 feet (10' trail proper plus 2' shoulders) is intended to serve all non-motorized users in a corridor. In a split trail scenario on the Kalamazoo River Bridge, pedestrians would be directed to the existing 7' wide sidewalk on the west side of the bridge and a narrowed trail width would be provided. The cross section would be similar to the following:

7' sidewalk / 10' 2-way bikes / 5' buffer / 10' SB In / 9' CTR In / 10' NB In / 2' shldr / 5' sidewalk

This option meets the spirit of the AASHTO guidelines in terms of width provided for all users, however, the letter of AASHTO requires that the width be provided at a single elevation. Unfortunately, MDOT staff would not comment on whether this option would be acceptable for either funding directly or connecting to other funded portions of the project.

Wide buffer: Instead of emergency services relying on a center turn lane to navigate the bridge, the 5' buffer would be widened with the intent that it would be used during emergencies. It would be combined with signage directing motorists to stay in their lane when they see/hear emergency vehicles. The cross section would be similar to the following:

7' sidewalk / 10' trail proper / 4' trail shldr + 8' buffer / 11' SB In / 11' NB In / 2' shldr / 5' sidewalk

This option provides the AASHTO-required clear width at the same elevation, but the shoulder area would be consolidated on the east side to provide a wide enough buffer area for emergency responders to utilize. Again, MDOT staff would not comment on the acceptability of this option.

Autoturn analysis was completed to demonstrate fire truck navigation of the corridor under various scenarios.

Other signage enhancements:

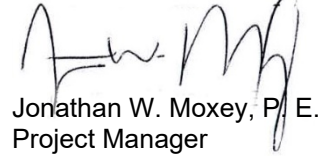
- Signage for southbound BSH traffic north of Lake Street indicating "right turn yield to pedestrians" or similar.
- "Pull over for emergency vehicles" signage could be utilized, depending on trail/lane/shoulder configuration.
- Flashers with directional signs throughout the corridor, directing drivers what action they should take could be utilized. The flashers would be controlled by the Fire Department to be activated during calls.

Although the FOTBST already has copies, we have compiled and attached the following resources, for your reference:

- Option 1D & 2F conceptual plans
- Autoturn Exhibits
- Copies of relevant email correspondence

Sincerely,

FLEIS & VANDENBRINK



Jonathan W. Moxey, P.E.
Project Manager

2024 Michigan Shared Streets and Spaces Grant Program

MDOT/OFME Informational Webinar



Agenda

- Welcome
- Program Information
- Demo
- Questions

Session is being recorded

Program Overview

Michigan Shared Streets and Spaces Grant Program (SSSG)

Primary Goal: To make communities more walkable, bikeable, and transit- and micromobility-friendly.

Key Program Aspects

- \$3.5 million in one-time funding is available in Fiscal Year 2024.
- Grants can be awarded up to \$200,000.
- No local match requirement.
- Eligible applicants defined by law include **incorporated cities and public transit agencies** as defined in section 10c of 1951 PA 51, MCL 247.660c.
- Grant applications will be due in June 2024.

Program Goals

- **Innovative:** Use technologies and innovations in project planning, design, and construction.
- **Coordinated:** Eligible entity should establish a team that includes a diverse range of partners, including those who will be served by the project.
- **Equitable and Accessible:** Use community education, engagement and outreach to understand stakeholder needs.
- **Ease of Implementation:** Project must be quick-build in nature, not requiring extensive environmental work, permitting, right of way, or design.
- **Easily Understood:** Narratives, pictures, maps, scaled drawings should clearly depict the project and its location.

Eligibility

- Projects must align with the program objectives of supporting public health, safe mobility and strengthened commerce.
- Eligible project elements must fall into one of these broad project types:
 - ❖ **Transit Supportive Infrastructure**
 - ❖ **Pedestrian and Bicycle Supportive Infrastructure**
 - ❖ **Micromobility Equipment**
 - ❖ **Plazas and Pedestrian Spaces**

Transit Supportive Infrastructure



- Dedicated bus or bus/bike lanes.
- Transit service improvements.
 - Such as traffic signal prioritization equipment.
- Transit station/stop access improvements.
 - Shelters, lighting, signs (i.e., wayfinding, informational, etc.), bike racks, or repair stations.



Transit Supportive Infrastructure



- Bicycle racks on transit vehicles.
- Bike loops and concrete pads.
- Sidewalk extensions to bus stops.
- Concrete pedestrian waiting area pads.
- Curb cuts and Americans with Disabilities Act (ADA)-compliant ramps at bus stops.
- Bus shelters.

Pedestrian and Bicycle Supportive Infrastructure



- Sidewalks contributing to existing network or access destinations.
- Improved pedestrian crossings such as curb bump-outs, curb ramps or refuge islands.
- Pedestrian signals.
- Bike lanes: standard, buffered or separated.
- Sidepath or shared-use path connectors.
- Bicycle parking.
- Bicycle repair stations.
- Lighting or wayfinding intended for pedestrians or bicyclists.

- Marketing and education related to Shared Streets and Spaces grant improvements, not to exceed 10 percent of project cost.

Micromobility Equipment

- Purchase of bicycles or other micromobility devices, docks or stations.
- Pavement markings and signs for micromobility parking.
- Supportive technology.



Plazas and Pedestrian Spaces



Photos for illustration purposes only

- Spaces for people to engage in retail activity, recreation, outdoor seating, dining, or community programming.
- Heaters, tents, tables and chairs, lighting, and other equipment to support outdoor programming that is intended to transform transportation infrastructure (roads or parking areas).

Ineligible Project Types/Costs

- Work to develop the application (Grant writing, design, engineering, and architectural).
- Projects that cannot be implemented and operational by Sept. 30, 2027.
- Project costs incurred prior to contract award.
- Operational costs associated with implementing and maintaining the operations of eligible items.
- Projects on private property.
- Projects that impede travel by people with disabilities or violate the ADA, even temporarily, unless adequate detours are provided.
- Temporary projects, intended for illustrative or pilot purposes only.
- Pavement resurfacing.



WizeHive Application Software Demonstration

Program Timeline

Notice of Funding Opportunity (News Release)	April 9, 2024
Webinars	April 15 and 19, 2024
Application Deadline	June 7, 2024
Press Release/ Selection Notifications	Mid- to late August 2024
Implementation Start	Upon execution of contract



Questions?



Thank You!



City Council Agenda Item Report

FROM: Ryan Cummins, Interim City Manager

MEETING DATE: May 8, 2024

SUBJECT: Proposal to Provide Architectural & Engineering Design, Bidding & Construction Administration Services for the Mt. Baldhead Restroom Building Replacement

DESCRIPTION:

The restrooms at Mt. Baldhead are in significant need of replacement. City Council listed restroom repairs as a desirable priority for the year. This work is also on the City's capital improvement plan.

The City Engineer has submitted the attached engineering services proposal to replace the restrooms.

The estimated engineering and construction cost to replace the restrooms is \$160,000.

The Parks and Public Works (PPW) Committee reviewed the attached rendering and plan. The new restroom building will be located in approximately the same footprint as the existing building, based on cultural findings made during AT&T's review of the site. The PPW Committee is recommending approval.

LEGAL REVIEW:

The City Attorney will be at your meeting to answer any questions you may have.

SAMPLE MOTION:

Motion to approve the Fleis & VandenBrink proposal to Proposal to Provide Architectural & Engineering Design, Bidding & Construction Administration Services for the Mt. Baldhead Restroom Building Replacement in the amount of \$26,800.



April 11, 2024

Via Email: rcummins@saugatuckcity.com

Ryan Cummins
City of Saugatuck
102 Butler Street
Saugatuck, MI 49453

RE: Proposal to Provide Architectural & Engineering Design, Bidding & Construction Administration Services for the Mt. Baldhead Restroom Building Replacement

Dear Ryan,

Based on discussions at recent City Council workshop and Parks & Public Works Committee meeting, we understand the City is considering moving forward with replacement of the existing restroom building at Mt. Baldhead based on our design concepts from December 2023 (attached for reference). The new restroom building will be located in approximately the same footprint as the existing building, based on cultural findings made during AT&T's review of the site. We propose the following Scope of Services to assist you:

Scope of Services

Design Phase

- Review the conceptual drawings with City staff and other stakeholders to get direction on details, project-specific elements (e.g. water bottle filling station), etc.
- Prepare a basic site plan with the building location, utility connections and related site features. We will utilize the topographic information provided by the AT&T design team for the site plan.
- Prepare preliminary plans and specifications for the project.
- Meet with City staff, KLSWA and other stakeholders, as appropriate, to review the plans and specifications. Incorporate comments received.
- Coordinate with the local code official and the Allegan County Health Department and assist the City with obtaining the building permit and soil erosion permit, respectively. We have assumed that the City will pay permit costs directly.

Bidding Phase

- Prepare and submit the advertisement for bids. Contact potential bidders directly and place the advertisement with plan rooms.
- Assemble bidding documents and distribute electronic (PDF) copies to plan rooms. Bid documents will also be available for review on our website.
- Issue electronic bid documents to prospective bidders.
- Answer bidder questions and provide supplemental information, if necessary.

2960 Lucerne Drive SE
Grand Rapids, MI 49546

P: 616.977.1000

F: 616.977.1005

www.fleis.com

- Conduct a public bid opening to be held at City Hall.
- Tabulate and review the bids received, evaluate references and provide a Recommendation of Award to the City.

Construction Phase

- After an award is made by the City, review bonds and insurance certificates provided by the successful bidder for conformance with the specifications. Prepare construction contracts for City signature. After contracts have been executed, prepare the Notice to Proceed.
- Schedule and attend a pre-construction meeting with the City, Contractor and utility companies, as appropriate. Prepare and distribute meeting minutes.
- Provide project administration and engineering during the construction period. Tasks will include:
 - Review Contractor pay applications and, if appropriate, submit a recommendation to the City for payment.
 - Prepare contract change orders, as necessary, and submit recommendation to the City for approval.
 - Maintain project records.
- Provide as-needed on-site observation and testing during project construction activities. We have included approximately 40 hours of field time in our fees. The field technician's duties will include:
 - Perform on-site materials testing, as needed.
 - Review work progress to date for conformance with the bid documents.
 - Address complaints filed with the City, if any.
- Conduct a final walk-through meeting on site with the Contractor and City staff to review the work. Prepare a final punch list of remaining work items. Provide follow-up review to see that the punch list items have been completed.
- Coordinate final payment with release of retainage and contract closeout.

Anticipated Schedule

We anticipate the following schedule for this project:

- Authorization: May 2024
- Design: May/June 2024
- Permitting: July 2024
- Bidding: August 2024
- Pre-Construction Activities: September 2024
- Construction: October 2024 to April 2025 (final restoration)

Engineering Budget

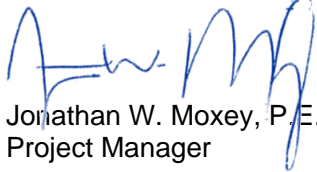
We propose to complete the Scope of Services outlined above for the following lump sum fees:

Phase	Task	Fee
Design	Bid Package	\$ 10,800
Bidding	Bidding Assistance	\$ 2,400
Construction	Construction Engineering/Administration	\$ 4,800
	On-Site Observation & Testing	\$ 6,400
	Contract Closeout	\$ 2,400
Total Proposed Fee		\$ 26,800


Authorization to proceed with the work can be given by returning a copy of this proposal, signed below as indicated. In the meantime, please feel free to contact us with any questions.

Sincerely,

FLEIS & VANDENBRINK



Jonathan W. Moxey, P.E.
Project Manager



Don DeVries, P.E.
Principal

Cc: Scott Herbert, Department of Public Works

WORK AUTHORIZATION

Fleis & VandenBrink is hereby authorized to proceed with the Scope of Services presented in this proposal in accordance with the existing Professional Services Agreement for General Consultation dated November 13, 2018.

By _____

Date _____



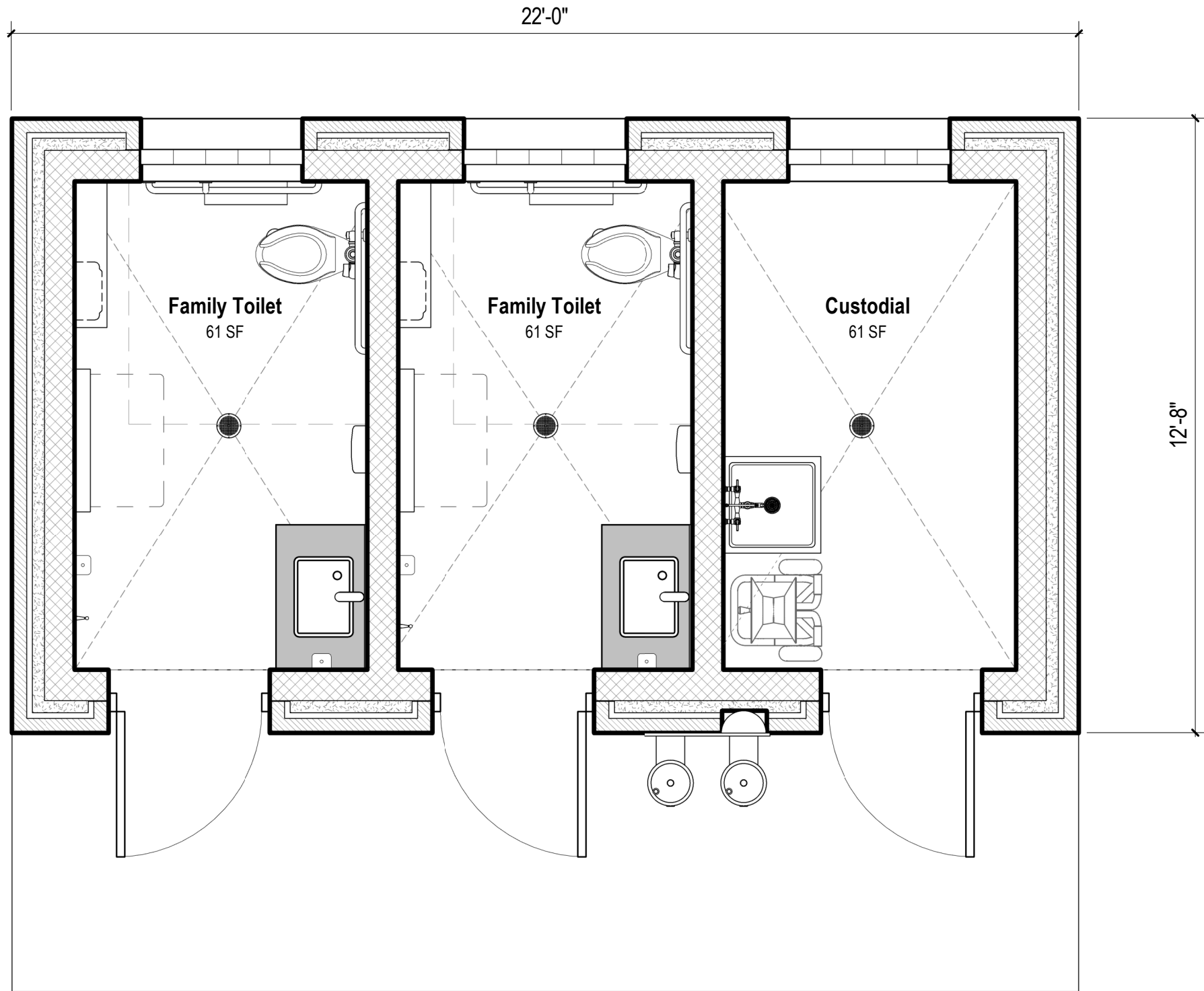
ISSUED FOR:

City of Saugatuck
Mount Baldhead Park
Restroom Building Replacement

Sketch - A1

PROJECT NO: 860460
ISSUE DATE: 12.20.2023





PRELIMINARY FLOOR PLAN

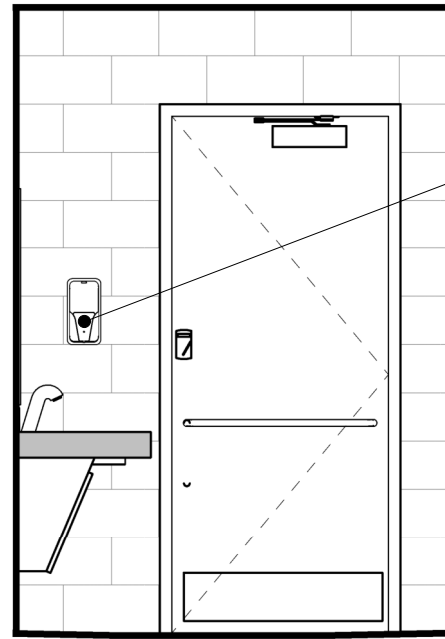
ISSUED FOR:

City of Saugatuck
 Mount Baldhead Park
 Restroom Building Replacement

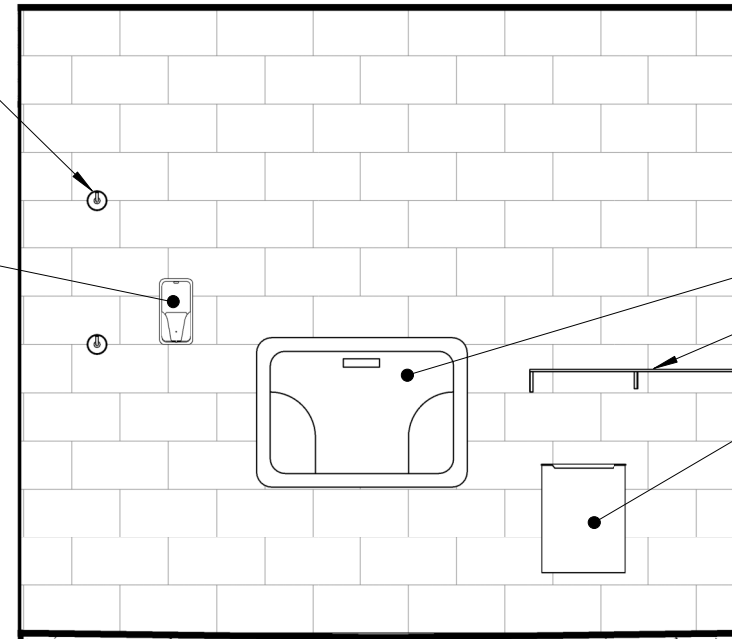
Sketch - A2

PROJECT NO: 860460
 ISSUE DATE: 12.20.2023





- Clothes hooks
(72" AFF & 48" AFF)
- Electronic soap dispenser
(battery)
- Electronic sanitizer
dispenser (battery)

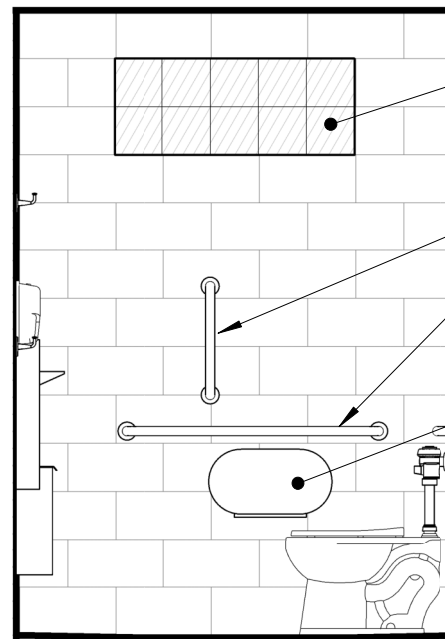
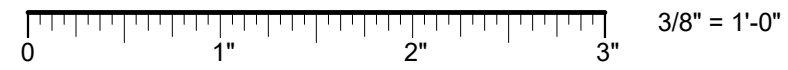


- Baby changing table
- Stainless steel shelf (36"x8")
- Stainless steel waste disposal
with hinged lid

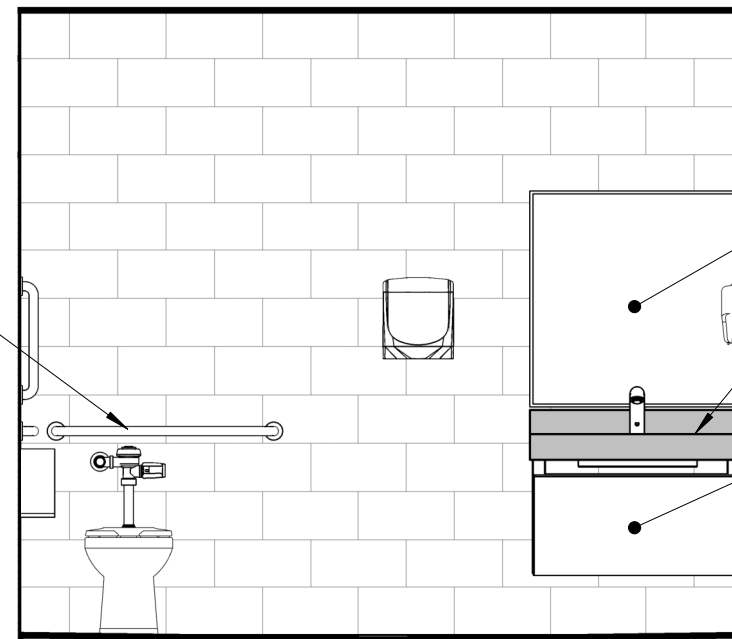
FRONT WALL ELEVATION



ACCESSORY WALL ELEVATION

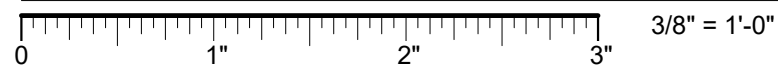


- Glass block (40"x16")
- Grab bar (18", vertical)
- Grab bar (42")
- Grab bar (36")
- Toilet tissue dispenser

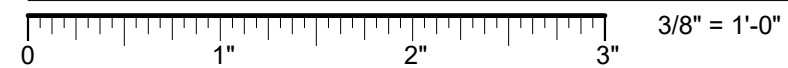


- Framed mirror (36"x36")
- Solid surface countertop
with integral sink
- Metal vanity supports
with closure panel

BACK WALL ELEVATION



PLUMBING WALL ELEVATION



ISSUED FOR:

City of Saugatuck
Mount Baldhead Park
Restroom Building Replacement

Sketch - A3

PROJECT NO: 860460
ISSUE DATE: 12.20.2023





City Council Agenda Item Report

FROM: Ryan Cummins, Interim City Manager

MEETING DATE: May 8, 2024

SUBJECT: Proposal to Provide Engineering Design and Bidding Services for Mt. Baldhead Observation Platform Replacement

DESCRIPTION:

The observation platform and retaining walls at Mt. Baldhead are in significant need of replacement. This work is on the City's capital improvement plan.

The City Engineer has submitted the attached engineering services proposal to replace the observation platform/deck along with retaining walls that support the area.

Renderings of the improvements are attached. The estimated engineering and construction cost to replace the platform and retaining walls is \$330,000.

The Parks and Public Works (PPW) Committee is recommending approval.

LEGAL REVIEW:

The City Attorney will be at your meeting to answer any questions you may have.

SAMPLE MOTION:

Motion to approve the Fleis & VandenBrink proposal to provide Engineering Design and Bidding Services for Mt. Baldhead Observation Platform Replacement in the amount of \$24,600.



April 11, 2024

Via Email: rcummins@saugatuckcity.com

Ryan Cummins
City of Saugatuck
102 Butler Street
Saugatuck, MI 49453

RE: Proposal to Provide Engineering Design and Bidding Services for Mt. Baldhead Observation Platform Replacement

Dear Ryan,

Based on discussions at recent City Council workshop and Parks & Public Works Committee meeting, we understand the City is considering moving forward with replacement of the existing observations deck/platform at the top of the Mt. Baldhead steps, along with retaining walls that support the area. The new structure would incorporate enhanced materials (galvanized supports, composite decking, etc.), as moisture and other factors have caused premature deterioration of simple treated lumber. Being within the regulated critical dunes area, the layout/footprint of the area is not anticipated to change significantly, as reflected in our renderings created earlier this year. We propose the following Scope of Services to assist you:

Scope of Services

Design Phase

- Review the conceptual drawings/renderings with City staff and other stakeholders to get direction on details, materials and other relevant inputs.
- Obtain additional topographic survey to supplement the information provided by the AT&T design team.
- Prepare preliminary plans and specifications for the project.
- Meet with City staff and other stakeholders, as appropriate, to review the plans and specifications. Incorporate comments received.
- Coordinate with the Allegan Conservation District to obtain a Vegetation Removal Assurance for the project and include it in the Critical Dunes permit application. We have assumed that the City will pay permit costs directly.
- Finalize plans and specifications based on comments received from ACD and EGLE, as applicable.

Bidding Phase

- Prepare and submit the advertisement for bids. Contact potential bidders directly and place the advertisement with plan rooms.

- Assemble bidding documents and distribute electronic (PDF) copies to plan rooms. Bid documents will also be available for review on our website.
- Issue electronic bid documents to prospective bidders.
- Answer bidder questions and provide supplemental information, if necessary.
- Conduct a public bid opening to be held at City Hall.
- Tabulate and review the bids received, evaluate references and provide a Recommendation of Award to the City.

Anticipated Schedule

We anticipate the following schedule for this project:

- Authorization: June 2024
- Design: July to October 2024
- Permitting: November to December 2024
- Bidding: January/February 2025
- Pre-Construction Activities: February/March 2025
- Construction: Spring 2025 (substantial completion prior to Memorial Day weekend)

Engineering Budget

We propose to complete the Scope of Services outlined above for the following lump sum fees:

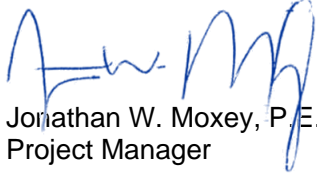
Phase	Task	Fee
Design	Topographic Survey	\$ 3,800
Design	Preliminary Design	\$ 12,600
Design	Final Design & Permitting	\$ 5,800
Bidding	Bidding Assistance	\$ 2,400
Total Proposed Fee		\$ 24,600

We will prepare a separate proposal for construction phase services once the timeline for construction and level of engineering oversight have been determined.

Authorization to proceed with the work can be given by returning a copy of this proposal, signed below as indicated. In the meantime, please feel free to contact us with any questions.

Sincerely,

FLEIS & VANDENBRINK



Jonathan W. Moxey, P.E.
Project Manager



Don DeVries, P.E.
Principal

Cc: Scott Herbert, Department of Public Works

WORK AUTHORIZATION

Fleis & VandenBrink is hereby authorized to proceed with the Scope of Services presented in this proposal in accordance with the existing Professional Services Agreement for General Consultation dated November 13, 2018.

By _____

Date _____















City Council Agenda Item Report

FROM: Ryan Cummins, Interim City Manager

MEETING DATE: May 8, 2024

SUBJECT: Hardscaping in Right of Way Request – 860 Simonson

DESCRIPTION:

In April 2023, the City received a complaint that a stone wall was constructed in the right of way along Simonson. Staff investigated the complaint and found that a stone wall was constructed without permits or City approval sometime after September 2019. The current owners, Sheila Denman and Michele Chitwood, advised the wall was in place prior to their purchase of the home in September 2023. They have submitted the attached request to allow the stone wall to remain.

The City's new hardscaping policy prohibits stone walls from being constructed in the right of way. However, the new ordinance states City Council "may issue a permit for a use prohibited under the Policy that has been installed or constructed prior to the implementation of this Section."

The City Engineer reviewed the request and noted the following:

- Allowing the wall to remain would be contrary to recent concerns raised about the amount of right of way encroachments along Park Street.
- No objection as long it is clear that a time may come that the City will remove the stone wall (or direct them to remove it) because it is in conflict with improvement of Simonson Drive (i.e. addition of a sidewalk, utility replacement or something of that nature).
 - In the case of Simonson, improvements are not immediate, but prior generations likely thought the same about Park or Maple Street.

LEGAL REVIEW:

The City Attorney will be available at your meeting to answer any questions you may have.

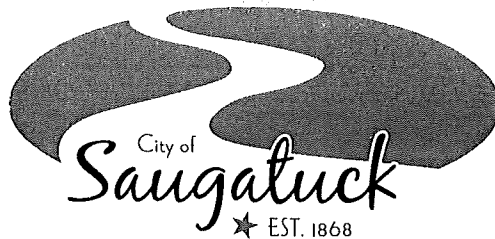
SAMPLE MOTIONS:

Motion to **approve** the already constructed stone wall, located in the Simonson right of way adjacent to 860 Simonson, with the following conditions:

1. The stone wall will be removed, at the property owner's expense, if the City initiates work or improvements to the Simonson right of way. Once the stone wall is removed, it shall not be re-installed.
2. The applicant shall obtain a bond or deposit into escrow an amount equal to the cost of removal of the installation.
3. The stone wall shall be maintained at the property owner's expense.

Motion to **deny** the request from the owner's of 860 Simonson to allow the stone wall to remain in the Simonson right of way.

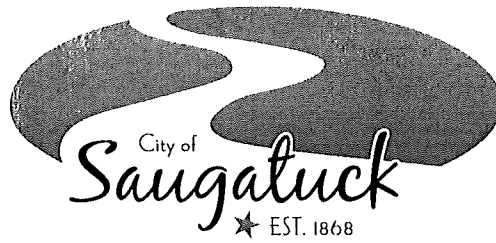
ROW Permit Fee: \$150
 Temp ROW Permit Fee: \$75
 Street Cut/Curb Cut Escrow
 Deposit: \$3000
 Installation Bond/Escrow:
 Superintendent Discretion
 ROW Permit – Council
 Review: \$250



RIGHT OF WAY PERMIT APPLICATION

Applicant Information	
Name: Michele Chitwood Sheila Denman	Business or Organization: N/A Phone:
Address: 860 Simonson Saugatuck	Phone:
E-mail: 13sdenman@gmail.com	
Contractor: N/A	

Project Information	
Request Type (select all that apply):	<input type="checkbox"/> Street Cut <input type="checkbox"/> Curb Cut <input type="checkbox"/> Boring <input type="checkbox"/> Stormwater Connection <input type="checkbox"/> Sidewalk Closure <input type="checkbox"/> Sidewalk Removal/Replacement <input checked="" type="checkbox"/> Installation <input type="checkbox"/> Temporary Encroachment
Project Location: 860 Simonson Saugatuck MI	
Description of Work/Project/Installation: When we purchased the home in Sept. of 2023 there was a 12-18" stone wall in the front yard easement. This wall is now under violation of the new policy. We are requesting this wall be allowed to stay for 2 primary reasons. Removal would result in a loss of parking area and for the nature center and removal will eliminate this aesthetically appealing front yard.	
Cost of Installation: Unsure of cost should we be required to remove the wall	
Safety Measures: Current wall presents no safety risks	
Start Date: N/A	End Date: N/A



Checklist

Attachments
(select all that
apply):

- Survey, Site Plan and/or Drawing
- Traffic Control Plan
- Certificate of Insurance naming City of Saugatuck as additional insured

Attestation

By signing this application, I understand and agree to all of the following:

- The statements made in this application and submitted plans are true, and if found not to be true, any permit that may be issued may be void.
- To comply with the conditions and regulations provided with any permit that may be issued.
- This application shall be deemed an agreement by the applicant to promptly complete the work permitted, observe all pertinent laws and regulations of the City in connection therewith, repair all damage done to the street surface and installations on, over or within the street, including trees, and protect and save harmless the City from all damages or actions at law that may arise or may be brought on account of injury to persons or property resulting from the work done under the permit or in connection therewith.
- To indemnify and save harmless the City against all damages or actions at law that may arise or be brought by reason of the excavation or structure being under, over, in or upon the street, or being unfastened, out of repair or defective during the ownership or control.
- An issued permit may be revoked by the City Council if there is a failure to abide by the conditions set forth in the permit or maintain the installation. A permit is automatically revoked if the installation causes or inflicts unreasonable harm on persons or property.
- Encroachments and obstructions in the street may be removed and excavations refilled, and the expense of the removal or refilling charged to the abutting landowner when made or permitted by him or her or suffered to remain by him or her otherwise than in accordance with the terms and conditions of the City of Saugatuck Code of Ordinances.
- All applicable sections of the City of Saugatuck Code of Ordinances and all other applicable laws, ordinances and regulations will be complied with.
- This is a permit application (not a permit) and a permit, if issued, does not include any representation or conveyance of rights in any other statute, building code, fire code, deed restriction or other property rights.

Applicant Signature:

Date:

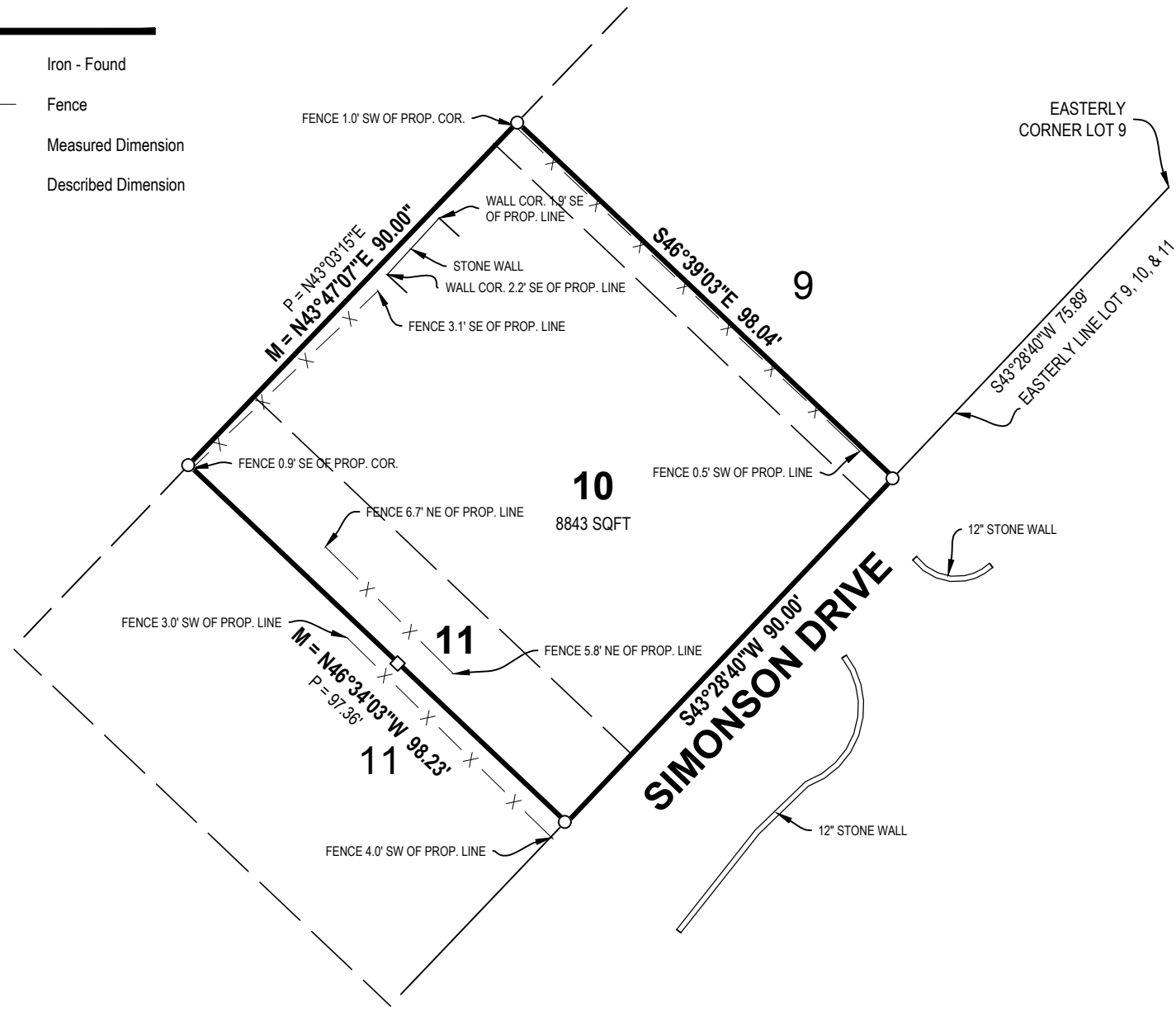
2-5-24

102 Butler Street • P.O. Box 86 • Saugatuck, MI 49453
Phone: 269-857-2603 • Website: www.saugatuckcity.com

Code of Ordinances: https://codelibrary.amlegal.com/codes/saugatuck/latest/saugatuck_mi/0-0-0-118

LEGEND

- Iron - Found
- X — X — Fence
- M = Measured Dimension
- D = Described Dimension

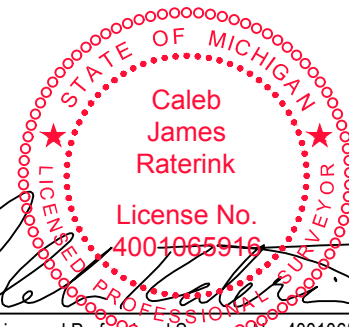


DESCRIPTION

Land Situated in the State of Michigan, County of Allegan, City of Saugatuck.

Part of Lots 10 and 11, Block 1 of Bandle's Addition to the Village (now City) of Saugatuck, Allegan County, Michigan, as recorded in Liber 2 of Plats, on Page 16, Allegan County records, being described as Commencing at the Easterly corner of Lot 9 of said Plat; thence South 43 degrees 28 minutes 40 seconds West 75.89 feet along the Easterly line of Lots 9 and 10 to the point of beginning of the parcel of land herein described; thence continuing along the Easterly line of said Lots 10 and 11, 90.00 feet; thence North 46 degrees 34 minutes 03 seconds West 97.36 feet thence North 43 degrees 03 minutes 15 seconds East 90.00 feet; thence South 46 degrees 34 minutes 03 seconds East 98.04 feet to the point of beginning, City of Saugatuck, Allegan County, Michigan.

(Warranty Deed, recorded in Liber 4802, Page 777, dated September 30, 2022, Allegan County Register of Deeds)



By: *Caleb James Raterink*
 Caleb J. Raterink Licensed Professional Surveyor No. 4001065916

SCALE: 1" = 30' 0' 15' 30' NORTH

Sheila Denman 5190 E. Orchard Mooresville, IN 46158		 www.nederveld.com • 800.222.1868 Holland 347 Hoover Blvd. Holland, MI 49423 Ann Arbor, Chicago, Columbus, Grand Rapids, Indianapolis
860 Simonson Drive		
DRAWN BY: JR REV. BY: REV.:	DATE: 5.4.23 REV. DATE:	PRJ #: 23200645 1 OF 1

This survey was made from the legal description shown above. The description should be compared with the Abstract of Title or Title Policy for accuracy, easements and exceptions.





THE CITY OF SAUGATUCK



CITY MANAGER SEARCH

“We welcome your interest in joining our world-class city. Saugatuck offers small town charm with an urban flavor.”

Lauren Stanton, Mayor
City of Saugatuck, Michigan

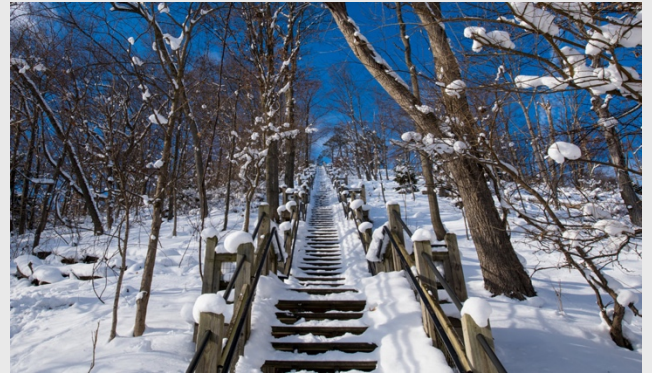


CITY OF SAUGATUCK, MICHIGAN



FULL-TIME STAFF

11



POPULATION

865

(15,000 DAILY SUMMER POPULATION)



2024 TOTAL BUDGET

\$5,875,740



SALARY

\$100,000–\$115,000

For more than a century, Saugatuck has been a top destination in the Midwest for artists, beachgoers, nature lovers and those who appreciate our unique mix of small-town charm, arts and entertainment, and the celebration of human diversity and the beauty of nature.

Find out more at saugatuckcity.com



123



WELCOME TO SAUGATUCK

Located in Allegan County along the alluring shoreline of Lake Michigan and the Kalamazoo River, Saugatuck, Michigan welcomes your keen interest in serving as our City Manager. With a year-round population of 865, Saugatuck blossoms to 15,000 daily visitors during the bustling summer and fall seasons. People from all over the state and Midwest have a special place in their hearts for Saugatuck.

Saugatuck is best known for our unending waterfront and vibrant downtown. From the winding Kalamazoo River to the harbor and Lake Michigan, recreational opportunities are everywhere. You can rent a kayak or canoe, ride atop a double-decker paddle boat or charter a fishing trip all in one day. The unsalted water of Lake Michigan is awaiting your arrival. Every year, 325,000 Visitors enjoy Oval Beach, which has been acclaimed among the “Top 25 Beaches in the World.”

Downtown Saugatuck is truly what separates Saugatuck from just another community. Our award-winning downtown experience offers outdoor gear, fine jewelry, Michigan-made gourmet foods, fine and casual dining, art galleries, home goods and some of the best sweets in the country. Frequent visitors to Saugatuck know when it comes to retail experiences, Saugatuck wins the Blue Ribbon.

Beyond our glamorous waterfront and panoramic downtown, Saugatuck offers thousands of trails for outdoor enthusiasts. Residents and visitors can explore the gently rolling dunes and shoreline at the Saugatuck Natural Harbor Area. For the real experience, you can challenge yourself to a steep climb up and down Mt. Baldhead and be rewarded with an unbelievable view of Lake Michigan.

As they say, Saugatuck has something for everyone. The front door to our community is always open. Come and explore Lake Michigan’s premier community. Once you visit, you'll want to stay!



THE BIG PAVILION



In the early 20th century, Saugatuck was home to the famous Big Pavilion, a large dance hall that attracted large bands and visitors from across the Midwest. Erected out of wood and tar, on July 4, 1909, the majestic Big Pavilion stood three stories high with a 6,600 square foot dance floor. Equipped with its own power station, the waterfront pavilion had 10,000 outdoor decorative lights. The Big Pavilion was the center of Saugatuck life for a half of a century.

In 1960, a devastating fire destroyed the community jewel.

SAUGATUCK'S RICH HISTORY

Following several decades of growth from prospering lumber and shipbuilding businesses, Saugatuck was officially founded in 1868.

There was a massive demand for lumber following the 1871 Chicago fire and the area was clear cut, an environmental disaster. With the forest gone, the winds blew. The wind blew the sand and the sand piled up. It began to bury the once bustling town. As many as ten buildings in Saugatuck are documented to have been relocated from Singapore. Eventually, Singapore was buried under the sand. Directly outside of Saugatuck City Hall is a historical marker which tells the founding and demise of Singapore.

In 2018, the community rallied to celebrate 150 years of Saugatuck. The grand celebration was held in conjunction with the Fourth of July.

OPPORTUNITIES AND CHALLENGES

The City of Saugatuck highly anticipates the selection and arrival of their next City Manager. The City Council and stakeholders look forward to success with the opportunities and challenges awaiting our new leader.

Here is a snapshot of the opportunities and challenges awaiting our next City Manager:

- Overseeing infrastructure improvements including an Asset Management Agreement, lead line replacements, bike trail completion, Park Street widening, and restroom improvements at Wicks Park, Mt. Baldhead and Coghlin Park.
- Supporting community events. Saugatuck is a national attraction. Our City Manager must embrace the importance of attracting visitors to our community.
- Park improvements are at the top of the list. The City Council is focused on developing master plans for Oval Beach and Mt. Baldhead Dunes. There is also a desire to upgrade Village Square and potentially a new DPW facility.
- There is work to be done in implementing new short-term rental ordinances and enhancing the City's relationship with the Convention and Visitors Bureau. Tourism will continue to be the driving force in the local economy.
- Continuing to work to improve cell service and introduce better broadband.
- Work collaboratively with neighboring communities of Douglas and Saugatuck Township.
- Saugatuck is a small community. Our City Manager will need to have a solid understanding of municipal finances and fostering a culture in which our staff can thrive.





WHY SAUGATUCK?

- It's simple... one of Michigan's Premier Cities
- Abundance of pristine waterfront from Lake Michigan to the Kalamazoo River
- Downtown Saugatuck is vibrant, eclectic and draws hundreds of thousands of visitors every year
- Oval Beach.... Saugatuck's Pride
- The 173-acre Saugatuck Harbor Natural Area... a must see
- A Dedicated and Talented City Hall Team....they will help you be successful
- The Saugatuck Historic District...we care for our history
- Named one of the 10 All-Star Beach Towns by Coastal Living Magazine
- Music Festivals, World-Class Concerts and Art Exhibits
- Saugatuck is home to some of the top Art Galleries in Michigan
- Our Community is Welcoming, Safe and Friendly
- Proximity to Grand Rapids' Nightlife and Premier Health Care
- The Small Town Life with a Bustling Urban Feel
- A Community that Embraces Pride and Diversity



THE RIGHT FIT

Saugatuck is seeking a candidate who has the vision and leadership experience to:

- Be a bridge builder throughout the Tri-Community
- Have a thick skin....brush things off easily
- Be visible, embrace and foster relationships with elected officials, our neighbors, our staff and our merchants
- Be more than an 8-5 office manager....attend festivals and community events
- Bring a high level of resourcefulness to the position.....we operate with a limited staff
- Create a sustainable work-life balance....take time for yourself
- Be apolitical....see the City Council as One
- Accept constructive criticism and use the experience to expand your foundation
- Be a problem solver, articulate and driven
- Trust our talented staff; we do not seek a micromanager
- Be positive, upbeat and confident in all aspects as our leader
- Bring established relationships with state officials to further Saugatuck's interests



TOP TEN STATEMENTS RESIDENTS USE TO DESCRIBE OUR CITY

WELCOMING

**DIVERSE AND
INCLUSIVE**

**HIGHLY
EDUCATED**

**SMALL-TOWN
URBAN FEEL**

FAIR-MINDED

GENEROUS

TOURIST MECCA

**SAFE AND
FRIENDLY**

PASSIONATE

FLOURISHING

APPLICATION PROCESS



DEADLINE TO APPLY: FRIDAY, APRIL 26, 2024

To join the City of Saugatuck team, please submit a cover letter, resume and five professional references to Frank L. Walsh, Walsh Municipal Services, LLC. Applications will be received at walshmuni@gmail.com. Please indicate in your cover letter whether you are requesting confidentiality as allowed under the Michigan Open Meetings Act.

The City of Saugatuck is a proud Equal Opportunity Employer.

Jamie Wolters

From: Jessica Ruthsatz <busschjl@gmail.com>
Sent: Tuesday, April 30, 2024 1:13 PM
To: Helen Baldwin; Jamie Wolters
Subject: The park project- Please include in Historic District Meeting Correspondence Packet

Follow Up Flag: Follow up
Flag Status: Flagged

Dear Saugatuck City Council Members and Historic District Council,

Thank you for all your hard work to make our sweet town a wonderful place to be. As a former history teacher, I see the value of your work and acknowledge the importance of historical conservation, especially in a town like ours. It has come to my attention that the park project has been met with resistance. I would like to express my deep sadness over anyone who would use "historical concerns" as a litigious weapon to block a project of such vital importance for an obvious personal vendetta.

As a local mother, this playground has always been close to our hearts and my elementary and middle-school-aged sons were very excited about new equipment that would be suited to children of all ages!

As the Preschool Director for Saugauck Public schools I can attest to the importance of this park as a community builder among locals and tourists alike. The park is a destination for one of our favorite preschool field trips and a frequent after-school hangout for families and their little ones.

I was incredibly excited about the fact that the new park would meet safety standards and serve a wider range of children with disabilities (many of whom I have as students). Parks can be welcoming places to most children, but can be heartbreaking for children with disabilities for whom the park is neither accessible or safe. I for one want to live in a city that embraces ALL children and sees value in creating spaces for children and families.

I support the park project moving forward! Our local children are more important than a dispute over a tree.

All the best,
Jessica

Jamie Wolters

From: Lavi O <lavinia.o@gmail.com>
Sent: Tuesday, April 30, 2024 10:33 PM
To: Jamie Wolters; Helen Baldwin
Subject: Re: Playgrounds

> Good morning, Saugatuck City Council,

> I'm a resident and I wanted to check in and ask why the playground build is on hold? I have two children ages four and seven and they were so excited for the playground unveiling this week. They insisted we go downtown and check out the playground space this weekend, only to be met by the disappointing sign which says there is a cease & desist.

>

> We're completely perplexed by this, given that the plans have been out there for months. Surely if someone had an issue with the playground, they would've spoken up earlier?

>

> We and our families are super disappointed by this hold on build.

>

> The playground is not only a benefit for locals, visitors love it too. We've met so many visiting families there. Hoping this is resolved this week so we can all begin to enjoy the new playground.

Please add to the May 7 District Meeting Packet.

>

> Thank you - Lavinia Oancea