NYSDOT Maintenance Facility Relocation & Redevelopment
Feasibility Study

February 2016
Updated August 2016

FISHER ASSOCIATES

"This Document was prepared for the New York State Department of State with funds provided under Title 11 of the Environmental Protection Fund Act."

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Special thanks to Joan Jurkowich of the Tompkins County Planning Department and Valeria Ivan of the New York State Department of State for their valuable participation in the project.

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Executive Summary

Project Setting

The NYSDOT Maintenance Facility is located on the north side of Ithaca between Route 13 (N. Meadow St.) and the Cayuga Inlet with access from the Third Street Extension. The railroad, Carpenter Park, Community Gardens and Mirabito Fuel are located just east of the 7.6 acre site with the Ithaca Wastewater Treatment Facility and Cascadilla Creek to the north. Abutting the northwest portion of the site is the regionally significant Ithaca Farmer's Market with the Cayuga Inlet along the westerly and southern boundaries of the site. The Cayuga Waterfront Trail is a multi-use trail that extends along the 1,100 foot perimeter of the site and continues throughout the City of Ithaca connecting parks and natural and cultural amenities. The Cornell University and Ithaca College Boathouses sit just south of the site with Cass Park directly across the Inlet to the west. Scenic vistas of Cayuga Lake, the Inlet, parks and surrounding hillsides are assets this parcel offers for redevelopment to a fully accessible mixed-use project.

Project History

In 1958, the New York State Department of Transportation constructed a maintenance facility along the Cayuga Inlet adjacent to North Meadow Street, the railroad line, and the former Steamboat Landing. Since the mid 1990's, county and city planners and elected officials have recognized the value of the NYSDOT parcel and the potential the site offers for increased public access to the waterfront as well as tax generating, water-enhanced development. The joint planning efforts between the NYSDOT and Tompkins County identified a 10.8-acre site in the Village of Dryden, at the intersection of Ellis Drive and Enterprise Drive, for a new maintenance facility. That property was acquired by NYSDOT in 2006. During the course of this study NYSDOT indicated that a site in the Ithaca area might be preferable. An alternative site on County owned property at the Ithaca-Tompkins Regional Airport was identified and evaluated.

The primary goals of the relocation feasibility study are:

- Understand the operational requirements of the NYSDOT, develop a conceptual plan and prepare a project cost estimate for the Dryden site.
- Analyze current real estate market trends, establish the highest and best use(s) for the Ithaca waterfront site, prepare concept development alternatives and determine the value of the property.
- Determine any financial gap between the cost of a new maintenance facility and the revenue generated from the sale of the Ithaca parcel. Prepare a financing strategy to close the funding gap and schedule for project implementation.

NYSDOT Maintenance Facility Relocation

An essential task for the study is to determine the cost of either constructing a new regional maintenance facility in the Village of Dryden to consolidate both the Tompkins and Cortland County operations or replacing the Ithaca facility at the potential location in Lansing. This cost along with the projected value of NYSDOT's Ithaca property will determine any "gap" in funding that will need to be raised from other sources. NYSDOT representatives described operational issues and constraints at the Ithaca facility:

- Insufficient space in the primary maintenance structure.
- The Cayuga Waterfront Trail occupies part of the area formerly used for storage of equipment and bulk materials.
- The existing salt barn causes operational inefficiencies due to size and access.

A new facility in Dryden would offer operational improvements and cost savings over the current maintenance facilities in Ithaca and Cortland. However, DOT also identified operational difficulties regarding winter road maintenance on the West side of Cayuga Lake that could result from a move to Dryden.

Based on the NYSDOT's stated program requirements, the consultant team prepared a schematic site plan illustrating all buildings and accessory structures. The total estimated budget is $14M for the consolidated facility in Dryden or $11M for a replacement facility on Warren Road in the Town of Lansing, (not including infrastructure improvements to the site).

Highest and Best Uses

Based on the evaluation of the assets and challenges of the Ithaca site context and conditions, zoning and land use, access and connectivity the design team established the highest and best uses of the site.

Primary Use: Residential

- Ithaca's historically strong residential market will continue for the foreseeable future due to the constrained supply of housing, an aging housing stock, steady growth in population, and increasing demand for urban living.
- Demand exists at all income levels, driven primarily by young professionals and empty nesters.

Secondary Use: Commercial

- Sufficient demand may exist to support a lakeside dining destination, commercial docks, and/ or limited waterfront retail uses (e.g. shops). This site is not suitable for large-scale retail or other commercial development.
- Dining and retail may attract visitors as well as locals, and could lead to synergies with an expanded and modernized Farmer's Market.

Other Potential Uses

- Demand may exist for tech or industrial flex space to accommodate small to medium-sized companies graduating from incubators and other startup programs. Yet market rents for this space may not be sufficient to justify above average development costs.
- This site may be suitable for hotel or conference center development but will face challenges of limited access, above-average site costs, and a significant pipeline of new hotel projects.

Concept Design Alternatives

The preparation of concept site development alternatives was informed by the site analysis and real estate market trends data. The team prepared "guiding principles" for preparation of the concept alternatives. These principles include:

1. **Public Policy Priorities:** Maximize land value, waterfront activation and farmers' market enhancement,

2. **Development Context**: Highest and best use, market supportable, destination creation,
3. **Urban Design Principles**: Mix of use and density, street life activation, enhance connectivity.

Based on site and market analysis the project team developed three development alternatives:

Concept 1 (Hotel / Residential) presents a boutique hotel along the waterfront next to the Ithaca Farmers Market. The balance of the site includes townhouse units, a mixed-use building with ground floor commercial space and two (2) multifamily structures

Concept 2 (Mixed-Use) illustrates townhouse units close to the waterfront with two mixed-use (ground floor commercial, residential above) buildings located at the south end of the site and multifamily structures. Surface parking parallels the east property line.

Concept 3 (Maximum Density) illustrates the highest density alternative. Two mixed-use buildings (ground floor commercial, residential above) at the southern portion of the site, four (4) larger multifamily structures along the Cayuga Inlet with one (1) multi-family structure in the center. A public open space is located in the center of the four (4) multifamily structures. The requirement for surface parking limits the number of multifamily structures and units that can be developed.

Market Context & Property Valuation

Residential Key Observations

The NYSDOT site will represent the first large-scale waterfront multifamily development in Ithaca offering: exclusivity; access to the waterfront and Ithaca Farmer's Market; water views to the south and west, adjacent to rowing facilities for Cornell University and Ithaca College; and stimulus to economic development of adjacent properties. Projected absorption in the local rental market is 100 – 150 units per year of which the NYSDOT site could capture a significant percentage.

Hotel Key Observations

A waterfront hotel would benefit from above market summertime occupancy and rates, but the site's location could weaken off-season performance.

Valuation Program Assumptions

The conceptual development alternatives included the following land use program elements:

Hotel / Residential	Mixed-Use	Maximum Density Res.
52 Multifamily Units	**84** Multifamily Units	**137** Multifamily Units
10 Townhouse Units	**46** Townhouse Units	**0** Townhouse Units
6,450 SF Commercial	**14,160 SF** Commercial	**13,950 SF** Commercial
124 Room Hotel		
286 parking spaces	**346** parking spaces	**378** parking spaces

- All income and cost assumptions are high-level estimates, as the proposed conceptual development plans have no direct comparables.

Findings are meant to guide the County and NYSDOT's disposition strategy rather that predict the actual sale value.
- Assume each concept development alternative is constructed over a 3-year period in a single phase.
- The Ithaca Farmer's Market remains in place and expands according to current plans.

Cost Assumptions

Development costs for all use types (townhouses, multifamily and hotel) exceed local comparables by approximately 10% due to geotechnical conditions.

Residual Land Value Analysis

Residual land value was calculated by determining the development value minus development costs for each of the concept development scenarios.

- Mixed-Use: $2.5m
- Hotel / Residential: $1.5m
- Maximum Density: <$1.0m

Public Benefits

The analysis estimated two forms of public benefit resulting from the proposed development plan: fiscal (tax) benefits and job creation.

Fiscal Benefit Analysis:

- Considers net direct tax revenues from ongoing operations, including property, personal income, school district and hotel taxes. Additional fiscal benefits will result from construction and indirect from construction and operations.
- Considers the cost of relocating the NYSDOT facility (estimated at $11M to $14M depending on location and scope).
- Valued total benefits as the present value of future tax proceeds at a 5% discount rate.

Project "value" is presented in two ways: market and assessment. The market value was determined by the consultant team based on comparable projects in Ithaca that are recently completed, under construction or in the development pipeline. Sales and rental figures were based on direct discussions with project developers, real estate professionals and independent research performed directly by the consultant team. The "assessed" values are based on discussions with the Tompkins County Assessor's Office. The assessed values are more conservative and are based on a broader range of projects and land uses (i.e. residential, commercial and retail). The actual project value and tax revenues generated will be based on the constructed project, land use types and square footages. Using estimated **market** values, the consultant team estimated potential future tax revenues to the State, County, City, and School District over 20 years. The following table summarizes total revenues to all jurisdictions as the present value of tax revenues over 20 years, for each scenario.

	NPV
Hotel Scenario	$36,424,000
Mixed-Use	$31,580,000
Max. Density Scenario	$29,650,000

The **Tompkins County Department of Assessment** estimated **average** assessed values for the proposed development as follows:

Use	Est. Assessed Value (Tompkins County)	Unit
Multifamily	$140,000	Per Unit
Townhouse	$280,000	Per home
Hotel Room	$100,000	Per Key
Retail / Restaurant	$150	Per square foot

Using these estimated **assessed** values, the consultant team estimated potential future tax revenues to the State, County, City, and School District over 20 years.[1] The following table summarizes total revenues to all jurisdictions as the present value of tax revenues over 20 years, for each scenario.

	Net Present Value (NPV)
Hotel Scenario	$21,000,000
Mixed-Use	$19,900,000
Maximum Density Scenario	$16,800,000

Job Creation Analysis

The estimated net direct full time equivalents consider estimated ongoing employment related to on-site uses. Additional jobs will result from project construction and indirect and induced effects of construction and operations.

- Key industry sectors include: food service, community retail, hotel accommodations, residential leasing, building management and property maintenance.
- Expresses job totals as full-time equivalent employees.

	Full Time Equivalent (FTE) Jobs
Hotel Scenario	110
Mixed-Use	42
Maximum Density Scenario	41

Project Financing & Schedule

The successful financing of the NYSDOT Maintenance Facility hinges on the basic assumptions of timing and which public entity assumes the lead role. Paying for the NYSDOT relocation prior to receiving tax revenues must be borne by a public entity, which is speculative and will require support from state officials, county legislators, city council and the tax payers.

The debt service on the estimated $14m capital cost (bond fees and interest not included) would either be paid directly up front through grants, direct expenditures of public funds or bond financing by a public entity until the private development tax revenue stream started, presumably 3-5 years from the time NYSDOT relocates to a new facility.

[1] Analysis assumes that existing tax rates for all jurisdictions remain constant after development (i.e. that the County and City do not adjust rates downward based on the increase in taxable base resulting from development.)

Accordingly, there appears to be four alternative scenarios for financing the NYSDOT Maintenance Facility relocation, including:

1. NYSDOT financing (100%)
2. Shared financial participation between State, County, City and School District
3. Private design/build/lease back
4. Private development of both the maintenance facility and waterfront parcel

Scenario 1

NYSDOT purchased a 10.8 acre site in the Village of Dryden for consolidation of both the Ithaca and Cortland maintenance facilities. Tompkins County has identified and evaluated an alternative site (Town of Lansing) should NYS DOT prefer to replace the existing facility in the Ithaca area. All efforts should be made in a joint effort between the three parties to request full funding of the project from NYSDOT officials in Albany or through Economic Development Grants through the Southern Tier Regional Economic Development Council's Combined Funding Application and/or Upstate Revitalization Initiative process.

This study has shown there are sufficient fiscal benefits (tax revenues and job creation) as well as the potential for positive economic development spin-off in the Route 13 / Cayuga Inlet corridor to warrant legislative support.

Scenario 2

This alternative proposes that the cost of financing a new NYSDOT Maintenance Facility would be shared by the state and local tax jurisdictions from tax revenues generated by the private development project.

The estimated total value of the mixed-use development scenario (Concept #2) is $43M at full build out. An alternative scenario (call it 2B) would be to combine the project values of the Dryden facility and redevelopment of the Ithaca waterfront site. The two projects together have a total value of $54M to $57M depending on the location and facility scope chosen.

A CFA grant could contribute up to 1/5th of the total project value, or $8.6M for scenario 2A or $10.8M to $11.4M for scenario 2B. The land sale would provide $2.5M; thus, the local share would be $2.9M for scenario 2A or $100,000 for scenario 2B.

$43M Project Value (2A)	**Amount**		**Amount**
Estimated Project Cost	$14M	Estimated Project Cost	$14M
New York State Share		New York State Share	
Sale of Land	$2.5M	Sale of Land	$2.5M
CFA/URI Funds (1/5th Project Value)	$8.6M	CFA/URI Funds (1/5th Project Value)	$11.4M
Sub Total	$11.1M	*Sub Total*	$13.9 M
Local Share	**$2.9M**	**Local Share**	**$100K**

A general obligation bond or Pilot Increment Financing (PIF) would be paid by diverting real estate taxes from the fully developed project (3-5 years out) and shared proportionately by the county, city and school district. The tax revenue projections indicate there is over $1.6M of annual tax revenue available to pay

the debt service. The debt payments under Scenario 2A would be $357,540 annually and under scenario 2B would be $13,200 annually. One hundred (100%) percent of the tax revenue would not be required; therefore each taxing entity would receive a portion of the revenue for their general fund.

The following table presents the annual local share payments based on the $43M and $57M project values.

Projected Annual Debt Payment

Mortgage Calculator	**Low**	**High**
Principal	$100,000	$2,900,000
Underwriting Fee	2%	2%
Reserve and Other Fees	5%	5%
Principal + Fee	$107,000	$3,103,000
Interest Rate	4%	4%
Term	10 years	10 years
Annual Payment	***$13,200***	***$357,540***

Revenue Analysis: Surplus Tax Revenue based on Market Value

Tax Increment (Market Value) (Year 1)*		
City of Ithaca	$632,732	$632,732
Tompkins County	$369,290	$369,290
School District	$782,779	$782,779
Total Local Tax Revenue	$1,784,802	$1,784,802
Surplus Tax Revenue	**$1,771,602**	**$1,427,262**

Revenue Analysis: Tompkins County Assessment Assumptions

Tax Increment (Tompkins Co. Assessment Assumptions (Year 1)*		
City of Ithaca	$420,000	$420,000
Tompkins County	$256,000	$256,000
School District	$484,000	$484,000
Total Local Tax Increment	$1,160,000	$1,160,000
Surplus in Tax Increment	**$1,146,800**	**$802,460**

*Year 1 assumes full occupancy at the completion of a three year construction project.

Scenario 3

This financing scenario includes a design/build/leaseback of the NYSDOT Maintenance Facility. The annual payment plans assumed rent schedules for a 15 year term and 30 year term, triple net lease and annual escalators with annual payments averaging $2.06M for a 15 year lease term and $1.65M for a 30 year term. This would put the total project cost at $31m for 15 years and almost $50M for 30 years.

Scenario 4

The fourth option would be an alternative to seek private developer proposals to do both projects; construct a new maintenance facility in Dryden and then develop the 7.6 acre waterfront parcel.

Project Schedule - Next Steps

The following tasks outline the next steps to be taken in the process of securing the funding for the relocation of the NYS DOT Maintenance Facility.

- Present the study recommendations to elected officials
- Secure funding to pay for the new NYS DOT facility
- Design and Engineering of NYS DOT facility
- Development RFP solicitation for waterfront site
- Construction of new facility
- Property title transfer of Ithaca property
- Waterfront parcel design, entitlements and construction
- Legislative actions and agreements required for bonding and tax diversion

Market Conclusions

The highest and best use was determined to be the mixed multifamily – townhouse residential concept (no. 2). The land sale proceeds alone will not be sufficient to cover estimated relocation cost. However the development will generate significant incremental tax revenue to the County, City and School District.

The redevelopment of the NYSDOT site will create broader catalytic economic benefits in the immediately adjacent neighborhood (Farmer's Market, Mirabito Petroleum and Carpenter Park). The NYSDOT will realize both operational and workforce satisfaction benefits from the new facility.

1 Project Introduction

Project History

In 1958, the New York State Department of Transportation constructed a maintenance facility along the Cayuga Inlet adjacent to North Meadow Street, the railroad line, and the former Steamboat Landing. The construction of this facility preceded the relocation of Route 13 to Meadow Street, the dredging of the inlet flood control channel (1964-1969), the Ithaca Farmer's Market (1988), Carpenter Business Park and the Ithaca Area Wastewater Treatment Facility (1987).

During the 1960's and 1970's the City experienced an out migration of population to the rural areas of Tompkins County including the Towns of Ithaca and Lansing. The region's first shopping mall was constructed in Lansing in the early 1960's. The Ithaca Commons was constructed in the early 1970's in response to the malls and relocation of downtown retail business. The 1980's and 90's saw vast changes with the expansion of Cornell University and Ithaca College.

The construction of the flood control channel, widening the Cayuga Inlet, served to mitigate flooding impacts and offered new waterfront opportunities to the community. Several public parks were created or enhanced; public access to the lake was improved and scenic views of both the lake and surrounding hills were enhanced. The project also created Inlet Island envisioned as the 'Port of Ithaca' to be developed as a vibrant waterfront district.

Since the mid 1990's county and city planners and elected officials have recognized the value of the NYSDOT parcel and the potential the site offers for increased public access to the waterfront as well as tax generating, water-enhanced development. The redevelopment of the site was initially identified in the 1997 Tompkins County Waterfront Plan. The Local Waterfront Revitalization Plan (LWRP) was updated in 2004, reaffirming the desired redevelopment of the NYSDOT site to water-dependent or water-enhanced land uses. The joint planning efforts between the NYSDOT and Tompkins County identified a 10.8-acre site in the Village of Dryden, at the intersection of Ellis Drive and Enterprise Drive, for a new maintenance facility.

The NYSDOT prepared their own project cost estimate in 2003 which assumed combining the Region's Ithaca (Tompkins County) and Cortland (Cortland County) operations in a single Dryden facility. In 2005, the NYSDOT purchased the site; however, the lack of state funding has stalled construction of the facility. In 2008 Tompkins County retained Highland Associates to prepare a project program, conceptual site design and cost estimate for the new facility in Dryden with the intent to assist the NYSDOT to seek funding for the project.

Since 2008, both Tompkins County and the City of Ithaca have updated their respective Comprehensive Plans. Both documents identify the site as prime waterfront land which offers an exciting opportunity for a vibrant waterfront district with water-dependent or water-enhanced land uses which could include; recreation, a hotel / conference center, a boating facility / museum or mixed use waterfront commercial and diverse residential. The Tompkins County

Comprehensive Plan identifies the completion of the NYSDOT Relocation Feasibility Study as an important action item. The site is within Focus Area #4 (Waterfront) of the City's Comprehensive Plan, which identifies waterfront, mixed use development that: protects scenic views, allows public access to the water, and reduces the impact of parking.

All documents (LWRP and Comp Plans) acknowledge the 'constraints' of the NYSDOT site, which will need to be overcome to progress future private redevelopment including,

- Limited access
- Railroad line and signalized crossing
- Overhead utility lines
- Undesirable adjacent land uses
- Poor soil conditions
- Isolation from adjacent neighborhoods, downtown and colleges

Tompkins County Planning Department issued a request-for-proposals (RFP) in mid-2014 for the relocation feasibility study. The primary goals of the study are to accomplish three primary tasks:

- Understand the operational requirements of the NYSDOT, update and outline the desired program for the new facility, develop a conceptual site plan and prepare a project cost estimate for the Dryden site.
- Analyze the current real estate market trends, establish the highest and best use (s) for the 7.6-acre site located adjacent to the Ithaca Farmer's Market, prepare concept development alternatives and determine the value of the property for sale to private developers.
- Determine if there is a financial gap between the cost of a new maintenance facility in Dryden and the revenue generated from the sale of the parcel. Prepare a financing strategy to close the funding gap and schedule for project implementation.

Cornell University Boat House (Fisher Associates)

2 NYSDOT Maintenance Facility Relocation

An essential task for the study is to determine the cost of constructing a new regional maintenance facility in the Village of Dryden which will consolidate both the Tompkins and Cortland County operations. This cost along with the projected value of NYSDOT's Ithaca property will determine any 'gap' in funding that will need to be raised from other sources.

The consultant team met with representatives from the NYSDOT to discuss current operations and procedures at both the Cortland and Ithaca facilities. A site visit was made to the Dryden site to review topography, access and circulation, utility infrastructure, adjacent land uses and environmental conditions.

Stan Birchenough (Former Region 3 Resident Engineer) identified a critical operational issue that will require resolution for the move to a new facility in Dryden. Several years ago Tompkins County terminated a long-standing 'municipal agreement' to maintain (primarily plow and salt) 135 lane miles of state roads located on the west side of the county due to cost and operational concerns. This action required the NYSDOT to increase the number of trucks at the Ithaca facility from 5 to 10 vehicles to serve all of Tompkins County. A move to Dryden would substantially increase the response time to Trumansburg and all state roads on the west side of the Cayuga Lake. Mr. Birchenough stated that a second facility would be required to serve the west side or Tompkins County will need to consider reauthorizing the municipal agreement to maintain the roads once again.

NYSDOT representatives further described operational issues and constraints at the Ithaca facility:

- There is insufficient space within the primary maintenance structure to store all trucks. The former sign shop building has been adapted to garage space and two Quonset hut structures have been erected to house trucks.
- The Cayuga Inlet Waterfront Trail project occupies approximate ½ acre of property along the south and west perimeter of the site. Construction of the trail and security fence has reduced the area that was used by the NYSDOT for storage of equipment and bulk materials. It should be noted that the property adjacent to the trail used for storage was not owned by the NYSDOT.
- The existing salt barn causes operational inefficiencies due to size and access. The limited size requires more frequent truck deliveries from Cargill to replenish stock. Staff man hours required to load and manage the stockpile is excessive.

A new facility in Dryden will offer operational improvements and cost savings over the current maintenance facilities in Ithaca and Cortland.

Based on the NYSDOT's stated program requirements the consultant team prepared a schematic site plan illustrating all building structures and accessory structures **(Figure 1).**

A detailed estimate of probable costs was prepared (refer to **Appendix 1**) including the following summary:

Description	Estimated Cost
Building & Structural (Note 1)	$9,153,000
Site & Utility Improvements (Includes Ithaca Site Demolition and Clearing)	$1,884,000
Subtotal Building & Site	***$11,037,000***
Project Contingency (5%)	$552,000
Soft Costs (20% of Building & Site Costs)	$2,208,000
Total Estimated Project Cost	**$13,797,000**

Note 1: *Cost includes all mechanical, electrical and plumbing systems; an elevator, bridge crane, lifts, fuel tanks, wash bay equipment, emergency generator and sprinkler system.*

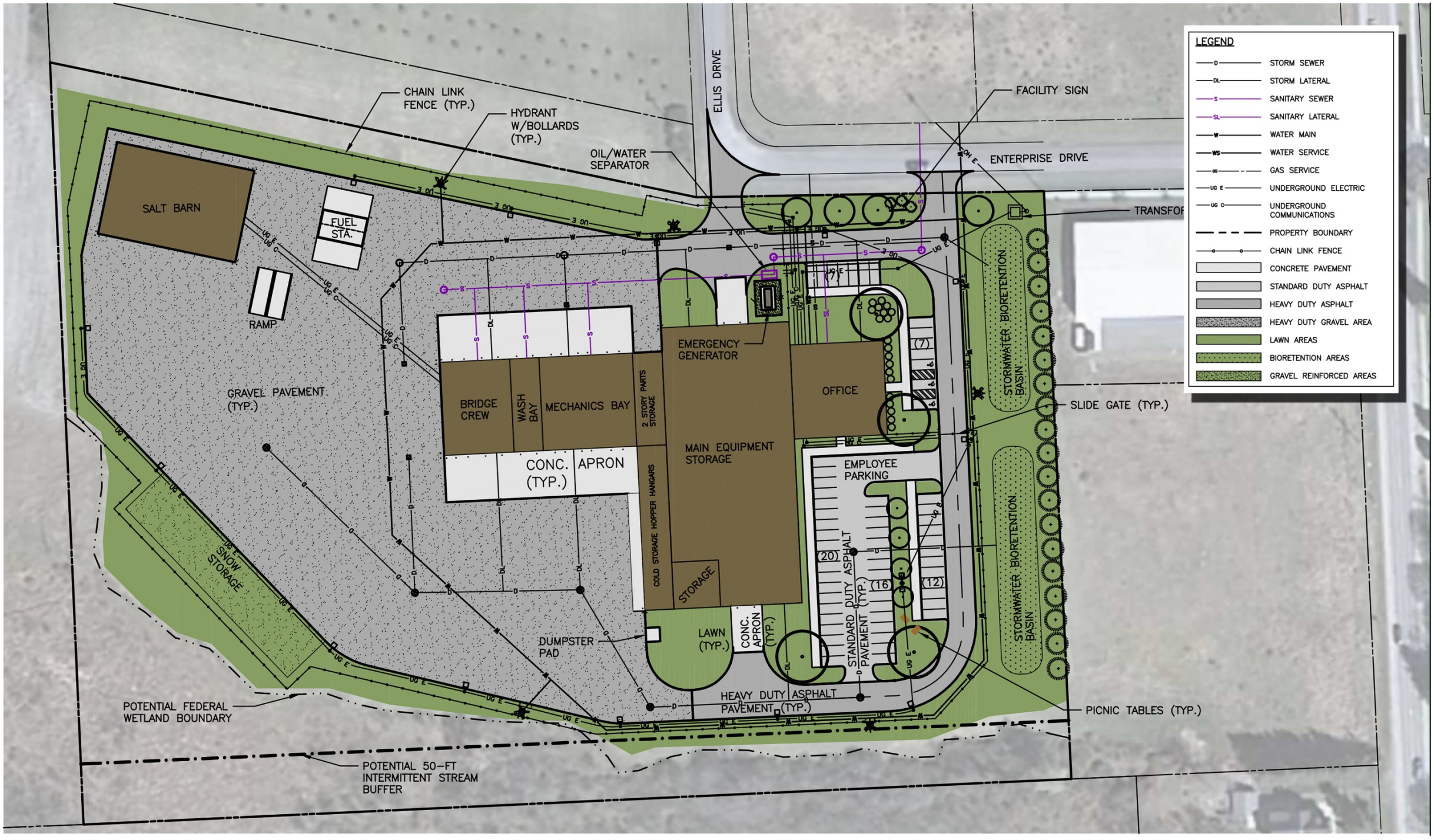
The total estimated budget that will be used for project feasibility purposes is $14,000,000. This figure represents a substantial increase (double) over the 2003 NYSDOT and 2008 Highland Associates estimates. The differences can be attributed to the following points:

- A more thorough analysis of the operational and programmatic requirements (staffing, equipment and systems), resulting in significantly improved facilities from what was originally identified as NYSDOT's (2003 and 2008) requirements.
- A more thorough review of the Dryden site and use of LIDAR topography for site design, engineering and earthwork requirements,
- General cost escalation
- The actual cost of the new maintenance facility will in part depend on the level (quality) of building materials, finishes, MEP systems, equipment specifications and construction delivery method. Value engineering has not yet been applied to the design process for the new facility.

The Dryden facility will offer substantive upgrades and improvements over the existing Ithaca and Cortland maintenance facilities. The most significant will be ability to store all vehicles and equipment inside, new utility systems, vehicle lifts, wash bays, dedicated storage for parts and consumable materials as well as employee facilities. The salt barn at the existing facility is undersized and difficult to manage (i.e. loading and extracting salt).

The new facility offers improvements over the existing facilities at both the Tompkins County and Cortland County facilities. It is difficult to assume the potential useful life of buildings and utility infrastructure at the two existing maintenance facilities; however the new Dryden facility would mitigate potentially substantial maintenance costs due to the age of each existing structure.

The Dryden site (10.8 acres) is essentially 30% larger than the Ithaca site (7.6 acres). Over the years, the NYSDOT has added Quonset hut style structures and converted a sign shop garage to house their vehicles. This has required staff time to make improvements for vehicle storage that could have been devoted to other maintenance efforts.



NYS DOT Facility Relocation Study
Dryden Site Plan
June 2015

DESIGN TEAM
FISHERASSOCIATES · BCK · IBI · TWMA LANDSCAPE ARCHITECTS · HR&A Analyze. Advise. Act.

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Figure 1: Dryden Site Plan

Alternative Relocation Site Update

In early May of 2016, Tompkins County and the New York State DOT (Region 3) commenced discussions about an alternative site for the construction of a new maintenance facility. The potential site is adjacent to the Ithaca-Tompkins County Airport and would house just the Ithaca operations and not include space requirements to serve Cortland County.

Fisher Associates met with Regional Director, David Smith, and Resident Engineer, Erick Buck, to discuss program requirements for a single residency. Based on these discussions, an alternative cost estimate was prepared. Refer to **Appendix 1a** for a comparison of program requirements, special needs and costs.

It is estimated that the alternative project cost could be reduced by approximately $3M to a total budget of $11M.

3 Understanding Key Issues

This phase of the study includes three primary tasks:

- Inventory and analysis of the existing site conditions and land use regulations of the NYSDOT's Ithaca property,
- Performing a demographics analysis and real estate market trends assessment,
- Interviewing key community stakeholders and summarizing the physical, functional, economic and cultural issues they believe are critical when evaluating development alternatives for the NYSDOT parcel.

Site Inventory and Analysis

The site inventory and analysis considered a wide range of environmental, cultural, regulatory, land use and infrastructure issues. Two reports were prepared for this study including:

- Phase 1 - Environmental Site Assessment (ESA) Report prepared by Fisher Associates, dated April 2015 (refer to **Appendix 2**), and
- Preliminary Geotechnical Investigation prepared by EmpireGEO Services, Inc., dated April 23, 2015 (refer to **Appendix 3**).

The consultant team performed detailed desktop and physical site inventory of the 7.66 acre parcel as well as all surrounding properties and neighborhoods across Route 13. Refer to **Appendix 4** for site analysis diagrams.

The key findings of the Phase 1 ESA are detailed in the report. Presented below is a summary of the issues identified.

- The site was vacant until 1958 (refer to **Figure 2, 1958 NYSDOT Plot & Grading Plan**) when the NYSDOT constructed the facility which exists today,
- There are historic activities on and/or near the site known as 'recognized environmental conditions' (REC's),
- The site previously had 6 underground petroleum bulk storage tanks (UST's). All tanks have been removed. Previous leaks were identified by the NYSDEC. Clean up was completed and no further remedial activities are necessary,
- There are 9 above ground storage tanks (AST's) reported for petroleum storage. There are 3 additional tanks for salt brine and 1 for magnesium chloride. All AST's are in good condition with no leaks reported or observed,
- The former Cayuga Inlet was located along the east property line adjacent to Third Street and has been filled with unknown material. The majority of the fill is located off the NYSDOT parcel, however a portion of the site that was filled is currently used for staff and visitor parking,
- The facility had a septic system installed during the 1958 construction. Sanitary sewers were installed within the past 5 years. The septic tank and leach lines were filled and left in place,
- Floor drains inside the building are currently connected to an oil/water separator which discharges to the sanitary sewer. Prior to installation of the sanitary sewer, the floor drains discharged to an undisclosed location,
- The report includes additional information about the potential for lead paint used in/on the structure.

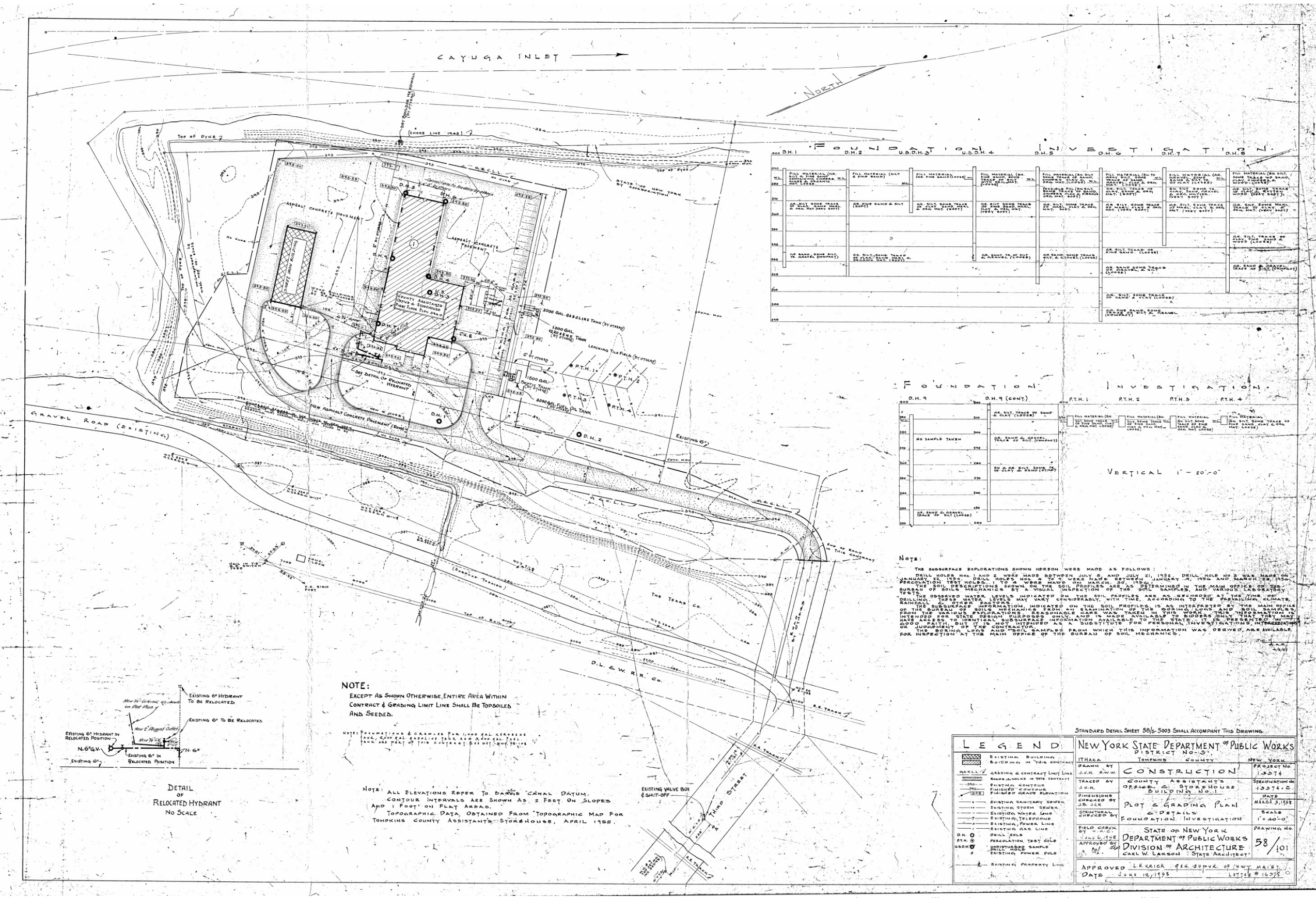


Figure 2: 1958 NYSDOT Plot & Grading Plan

Geotechnical Investigation

The geotechnical report details the soil conditions (surface fill and indigenous) as well as depths to ground water. Ground water depths range from 4 to 8 feet at or near the interface of fill and native soils and near the water levels of the Cayuga Inlet. Bedrock was not encountered at the boring depths of this study. Site plans provided by the NYSDOT of the Ithaca facility dating back to 1958 included boring log data as well. Similar geotechnical conditions were documented at that time.

Fill soils were measured to a depth of six to eight feet and are characterized as very loose to compact silty sands, gravel or clay. The native lacustrine deposits underlying the fill are comprised of silts with clay, sand and/or organics with peat which extend to depths of 23 to 30 feet. Below this are soils with the characteristic of 'marl' with very soft consistency to depths of 45 to 50 feet. Underlying the marl are very loose sandy silts to 75 feet. Borings were explored to depths of 97 feet where soils are loose to firm in relative density with small amounts of gravel.

The report by EmpireGEO Services offers three methods for the construction of future building foundations:

- Pile foundations
- Conventional spread foundation system
- Mat foundation

Recommendations are also presented for floor slabs, basement floors (if proposed), seismic design considerations and surface pavement design. The report provides further recommendations for site preparation and construction including;

- Excavation of foundations
- Dewatering
- Pile driving
- Subgrade preparation (floors / pavements)
- Excavation safety

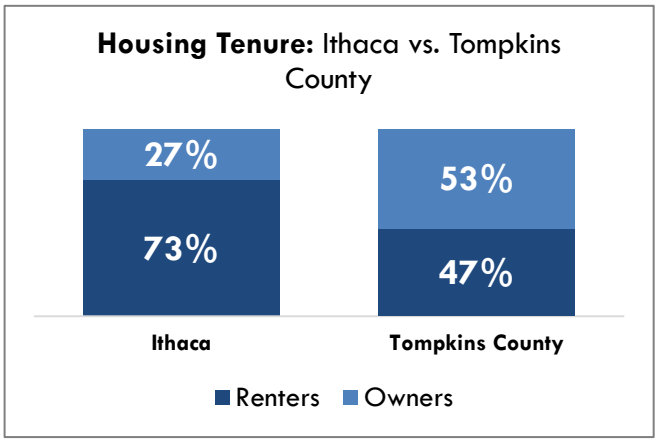
Existing Salt Barn at
Ithaca NYSDOT Maintenance Facility
(Fisher Associates)

Quonset Hut Truck Storage at
Ithaca NYSDOT Maintenance Facility
(Fisher Associates)

Demographics and Real Estate Market Trends

Overview
Ithaca is a singular community in the Finger Lakes region whose economy, housing market, and demographics have been driven largely by the presence of Cornell University and Ithaca College. More recently, emerging industries including technology and health care, and growing interest for downtown living among young professionals, families, and retirees, has influenced local development patterns.

- Ithaca has seen slow but steady historical population growth, averaging 0.2% annual growth during the 2000s and 0.6% since 2010. Due in part to the presence of anchor institutions, population is historically less sensitive to market cycles than most markets, including Tompkins County.
- Population growth is expected to continue at a steady pace into the future, driven by modest enrollment growth and the increasing desirability of urban downtowns.
- Similar to urban areas across the country and in particular college towns, Ithaca's downtown core is growing. A 2011 housing market study completed by Danter Company identified 654 new units constructed since 2000, with several hundred more in the pipeline; many of those units have since been delivered or are in development.
- The Danter study also projected demand for 1,200 to 1,350 additional housing units by 2017 in the downtown submarket, with demand at all price points and for both rental and for-sale product.
- Ithaca's housing market remains largely a rental market, with nearly 75% of all units renter-occupied, versus 47% for Tompkins County. The rental market is also partially the result of a dearth of for-sale residential development in recent decades, due in part to difficult financing conditions. Danter's study and independent research has found a high demand for for-sale product, should development financing be deemed feasible.



Source: ESRI Business Analysis

DEVELOPMENT CONTEXT: ASSETS & CHALLENGES

Factor	Assets	Challenges
Site Context & Site Conditions	• Waterfront development sites in Ithaca are rare and in high demand, as most land is designated as parkland or in use by institutions. Developments on nearby Inlet Island and the proposed Johnson Boatyard project suggest latent demand for waterfront residential development. • Site's unbuilt character provides a clean slate for new development.	• The site is isolated from adjacent neighborhoods and disconnected from the urban grid. • Deep bedrock and unstable soils will require special foundations (see Geotechnical Investigation above) and increase development costs and complexity. • Demolition costs are also likely to exceed comparable vacant development sites.
Zoning & Land Use	• Special waterfront zoning permits a mix of uses with significant height and density (up to 5 stories and 100% maximum lot coverage).	• On-site parking needs will be significant, with residential uses demanding at least 1.5 spaces per unit, in addition to needs of any commercial uses. This will limit buildable area and/or add to site costs. • Due to the costs of mid-rise construction and parking needs, it may be financially infeasible to maximize developable area.
Access	• Proximity to Route 13 provides convenient access by auto	• Third Street is inadequate to accommodate significant new development. Creating new access roads is challenging due to the railroad right of way and regulations governing Route 13. • Mass transit is located nearby at Aldi's. Extension into site would be beneficial.
Adjacency	• Adjacency to Farmer's Market, the Cornell and Ithaca College boat houses, the Cayuga Inlet and Waterfront Trail makes the site recognizable and offsets perceived isolation.	• Adjacency to an active rail line, wastewater treatment plant, and petroleum facility may impact land value.

HIGHEST & BEST USE

Primary Use:

Residential

- Ithaca's historically strong residential market is not expected to bottom out in the near term due to the constrained supply in housing, an aging housing stock, steady growth in population, and increasing demand for urban living.
- Demand exists at all income levels, driven primarily by young professionals and empty nesters.
- Condos are in high demand across Ithaca, though financing challenges pose a significant constraint.

Secondary Use:

Commercial

- Sufficient demand may exist to support a lakeside dining destination, commercial docks, and/ or limited waterfront retail uses (e.g. shops). This site is not suitable for large-scale retail or other commercial development.
- Dining and retail may attract visitors as well as locals, and could lead to synergies with an expanded and modernized Farmer's Market.

Other Potential Uses:

- Demand may exist for tech or industrial flex space to accommodate small to medium-sized companies graduating from incubators and other startup programs. Yet market rents for this space may not be sufficient to justify above average development costs.
- This site may be suitable for hotel or convention center development but will face challenges of limited access, above-average site costs, and a significant pipe line of new hotel projects.

Takeways & Opportunities

1. Considered independently, the NYSDOT site presents significant challenges in terms of access, cost, and marketability given a general sense of isolation. It is likely that total land area would need to be reserved for high-value uses to justify the development costs.

2. Supporting the improvements and possible expansion of the Farmer's Market site, will enhance the long term economic viability of the NYSDOT site and entire Waterfront zoning district by:

    - Accommodating a broader mix of uses, including a modernized Farmer's Market and potentially visitor-serving waterfront commercial uses. Highest-value uses may be better positioned.
    - Encouraging larger-scale site planning to integrate new uses with and improving access to surrounding properties, neighborhoods and uses, potentially introducing a more traditional street grid.
    - Supporting the City's and Farmer's Market's joint goals of creating a more modern, financially sustainable facility that preserves a core Ithaca destination.

3. Long-term, a broader planning effort around this site could contribute to overall policy goals of expanding waterfront access and smart urban growth. Should the existing rail service be abandoned in the future, recreational developments, such as a "rails to trails" linking Myers Point, Buttermilk Falls, and Stewart Park, might also contribute to long-term site value and appeal to visitors.

Stakeholder Interviews (Key Issues)

The Advisory Committee helped to define the key stakeholders to be interviewed for the study. Stakeholder outreach included representatives from the following organizations:

- Ithaca Farmer's Market
- Ithaca College Rowing
- Cornell University Rowing (Men's & Women's)
- Cornell University Real Estate
- Ithaca Area Wastewater Treatment Facility
- Andree Petroleum (now Mirabito Energy)
- B&W Supply
- City of Ithaca Department of Public Works/Traffic Systems
- Penn Line, LLC (rail operators)
- Carpenter Business Park*
- Cayuga Waterfront Trail
- Community Garden (Project Growing Hope, Inc.)*

(*) Indicates stakeholders not interviewed.

A list of stakeholders with contact information can be found in **Appendix 5.**

Additional stakeholders approached by the consultant team;

- New York State Electric and Gas (NYSEG) and parent company Iberdrola

Detailed notes from the interviews with each of the stakeholders can be found in **Appendix 5**. Below are the common issues and themes voiced by stakeholders:

1. Traffic congestion related to Farmer's Market
2. Poor parking design and inadequate parking capacity at the Farmer's Market
3. Outgrown existing footprint – Additional amenities are needed
4. Steamboat Landing is a popular destination for the Farmer's Market and weddings
5. Mixed-use development is the ideal development scenario for the NYSDOT water- front site

Cayuga Inlet Trail Extension
Under Construction (Fisher Associates)

Steamboat Landing at
the Farmer's Market, Winter 2015
(Fisher Associates)

Interior of the Farmer's Market
Winter 2015 (Fisher Associates)

4 Conceptual Development Alternatives

The preparation of concept site development alternatives would be informed by the previously completed site analysis and real estate market trends data. The strongest demand is for residential housing serving young professionals and empty nesters. All of the new housing projects are located near the colleges or in downtown near services, employment, the colleges and amenities. For the purposes of this study, the team agreed that adding 100 square feet to each unit type (1, 2, or 3 bedroom) would compensate for some of the NYSDOT site drawbacks (location, access, adjacent land uses). Proposed site layout and building types should anticipate both rental and for-sale possibilities.

Along with the Advisory Committee, the consultant team agreed that 'flex' commercial and incubator laboratory space were not considered appropriate land uses for this site and should not be incorporated in the concept design alternatives. Flex commercial space and laboratory space uses are typically 9-to-5 weekday operations and don't serve to draw residents or visitors to the waterfront. Both the City and County Comprehensive plans speak of creating a vibrant waterfront with water enhanced uses including mixed housing.

Lodging and conference facilities were identified in both the Tompkins County and City of Ithaca Comprehensive Plans as a potential use on the NYSDOT site. Extensive research of the hotel market context (refer to page 22) indicated that the city and county might have reached saturation of hotel capacity. Although much of the product is older (up to 30 years), new hotel projects are locating in the downtown core adjacent to business and the academic institutions. Absorption of the new and pipeline projects could take five to ten years. That said, a 'boutique' style hotel with some meeting and destination dinning amenities could take advantage of waterfront location and positioning the structure to take advantage of the views to the water and surrounding hillsides.

Regarding potential 'transformative' land uses; nothing was identified by the market study or through discussions with stakeholders, including Cornell University. The consultant team identified one potential entertainment venue, the Crayola Experience which currently has facilities in Easton, PA and Orlando, FL. This potential destination would likely be too seasonal and require land use adjacencies found in downtown versus the isolated NYSDOT site. Further, there would likely be more conflicts than positive synergies with the Farmer's Market. Museums were not considered because it was agreed that all land uses would be taxable.

Based on discussions with Ithaca Farmer's Market (IFM) managers, the consultant team believed that improving the IFM (technology, utilities, services, parking and access) and expanding their operations to more hours weekly and seasonally with additional retail services and restaurants would create the strongest social and economic synergies with the NYSDOT site.

For additional information on the comparable real estate market project, hotel data and public market comparisons from other cities, refer to **Appendix 6**.

Guiding Principles
The consultant team prepared 'guiding principles' for preparation of the concept alternatives. These principles include:

4. **Public Policy Priorities**
   Maximize Land Value/Waterfront Activation/Farmer's Market Enhancement

5. **Development Context**
   Highest and Best Use/Market Supportable/Destination Creation

6. **Urban Design Principles**
   Mix of Use & Density/Street Life Activation/Enhanced Connectivity

Based on these principles the consultant team developed three concept design alternatives which are presented in **Figures 3 to 5**.

The consultant team prepared cost estimates for each alternative; building construction, site preparation and improvements, soft costs and developer profit. HR&A researched development costs (acquisition, entitlements, construction and profit) of multiple projects (similar style and site conditions) across Ithaca. During this process, the Consultant team determined the foundation costs, due to geotechnical conditions, were too high to support structured (podium or below grade) parking thereby requiring surface parking for each development concept alternative.

The zoning code does not have specific parking requirements, so for the purposes of advancing the three alternatives the Consultant team assumed the following parking requirements;

- Commercial space – 1 space per 100 s.f. gross floor area
- Hotel – 1 space per room (124 spaces illustrated)
- Townhouses – 2 garage spaces per unit
- Multifamily residential – 1.5 spaces per unit

Concept 1
Illustrates the hotel positioned along the waterfront at the north portion of the property next to the IFM. The balance of the site included townhouse units, a mixed-use building with ground floor commercial space and two (2) multifamily structures.

Figure 3: Hotel Concept Design

Concept 2
Townhouse units are positioned closer to the waterfront with two mixed use (ground floor commercial, residential above) buildings located at the south end of the site with multifamily structure positioned on the east side of the main internal street. Surface parking parallels the east property line.

Fisher Associates prepared a plan illustrating potential amenities and public access plan for Concept 2. Offering site and other amenities should be considered in an effort to maintain high absorption and occupancy rates. Amenities could include: pool, outdoor leisure space, bbq's, activity space, dog walking, mail room, recycling facility, movie room, business center, laundry, and transient docking pier. The graphic (**Figure 6**) also shows an alternative configuration of a public/private marina. Transient spaces and seasonal rental for residents should be developed.

Figure 4:
Mixed-Use
Concept Design

3

Concept 3

Illustrates the highest density alternative. Two mixed use buildings (ground floor commercial, residential above) are located at the southern (point) portion of the site, four (4) larger multifamily structures along the Cayuga Inlet with one (1) multi-family structure set across the main drive at the northern end of the site. Streets and surface parking dominate the center and easterly portions of the parcel. A public open space is located in the center of the 4 multifamily structures and at the south end of the parcel. The requirement for surface parking limits the number of multifamily structures and units that can be developed.

Figure 5: Maximum Density Concept Design

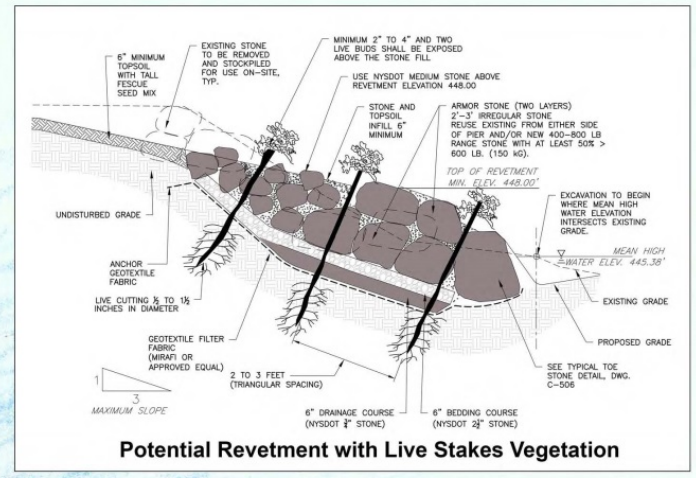
Potential Dredging

Public/Private
Marina

SEDIMENT · SHALLOW WATER

MEAN HIGH WATER

Cayuga Lake Inlet



Potential Revetment with Live Stakes Vegetation

Buffer Plantings

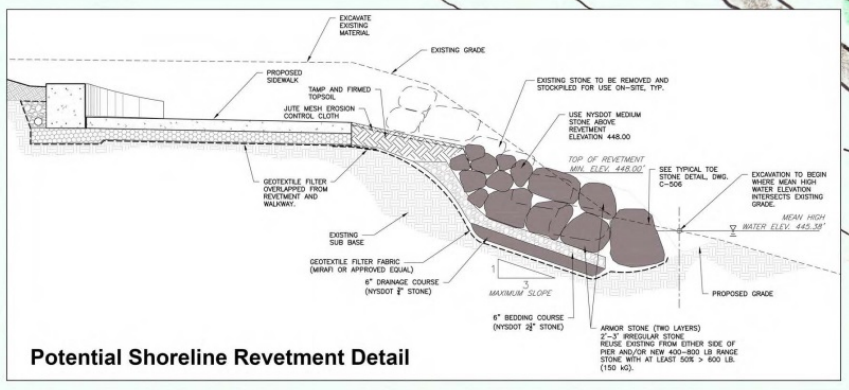
Third Street

Drop-Off

Ithaca
Farmers
Market

Buffer Plantings

Identity
Sign / Kiosk



Potential Shoreline Revetment Detail

TOMPKINS COUNTY

NYS DOT Facility Relocation Study
Amenities/Public Access Plan September 2015

N

DESIGN TEAM
FISHERASSOCIATES · IBI BCK · TWLA LANDSCAPE ARCHITECTS · HR&A Analyze. Advise. Act.

"This document was prepared for the New York State Department of State with funds provided under Title 11 of the Environmental Protection Fund."

Figure 6: Mixed Use Concept Plan with Potential Site Amenities

Architectural Plans

The BCK / IBI Group Architects presented the architectural styles of the proposed townhouses, mixed use commercial / residential structures, hotel and multifamily residential. 3D illustrations with the buildings and site plan improvements overlaid on low oblique aerial photographs. Refer to **Appendix 7** for all architectural plans).

Utility Design & Engineering

Fisher Associates (FA) prepared utility infrastructure design plans for Concept 1 (Hotel Concept Design) and Concept 2 (Mixed-use Concept Design) roads, parking, earthwork, water, sanitary, storm water, gas, electric and tel/data. These plans served to develop site cost estimates that were used in the valuation analysis.

Shoreline Stabilization

FA reviewed the existing shoreline stabilization on the south and west sides of the NYSDOT property. With little to no evidence of shoreline erosion it is the opinion of Fisher Associates that improvements to the existing revetment (stone armoring) will not be required. The shoreline is also technically not owned by the NYSDOT and title would not transfer to a new owner.

Traffic Impacts

A traffic analysis was prepared by FA for the intersection of Route 13 and 3rd Street. Trip generation counts were calculated for each of the three (3) concept alternatives and applied to the background traffic data during the weekday am and pm peak hours, as well as the Saturday peak hour because of heavy, seasonal use of the Ithaca Farmer's Market. The analysis showed no effect on the level of service at the intersection for any of the three alternatives, during the weekday peak hours. However, on Saturday, use of the IFM has resulted in a level of service (LOS) of F at that intersection. Finding solutions will prove challenging, as there is limited Right-of-way available for addition lanes and there is short stacking distance between the intersection and the RR crossing. The LOS could be improved by adding a right turn lane from 3rd Street onto Route 13 southbound. Further improvements in the LOS would require a right turn lane from Route 13 onto Third Street in the southbound direction. Refer to **Appendix 8** for the full traffic analysis and recommendations.

Public Participation

A public meeting was held in the Borg Warner Room at the Tompkins County Public Library on October 15, 2015. The meeting was well attended and staffed by members of the consultant team and Tompkins County Planning Department. There was virtually unanimous support for redevelopment of the NYSDOT property and for improved public waterfront access, residential living and commercial attractions (i.e. restaurants, retail and meeting space). It was clear that most attendees' experiences of the NYSDOT site were based on their visit to the Ithaca Farmer's Market. Many spoke of the traffic congestion and the need for alternative (additional) access improvements. Many spoke of the new Cayuga Waterfront Trail expansion, with few, if any negative comments regarding adjacent land uses. Some were for the hotel, with an equal number opposed to a hotel. A few questioned why the property could not be developed into a park. Many participants offered ideas for integrating sustainability measures into the project and including the property in a regional 'micro-grid' energy plan.

5 Market Context & Property Valuation Analysis

Residential Market Context

To guide income, development costs and program assumptions the following four recently **completed multi-family** residential projects were selected based on comparable scale and market appeal.

The following **'pipeline'** development projects were selected for comparison to also guide program and cost assumptions, including one waterfront project.

Property	Location	Year Built	# of Units
Lofts @ Six Mile Creek	Downtown	2015	45
Cayuga Place	Downtown	2008	68
Gateway Commons	Downtown	2007	25
Coal Yard Apartments	East Hill	2012	24

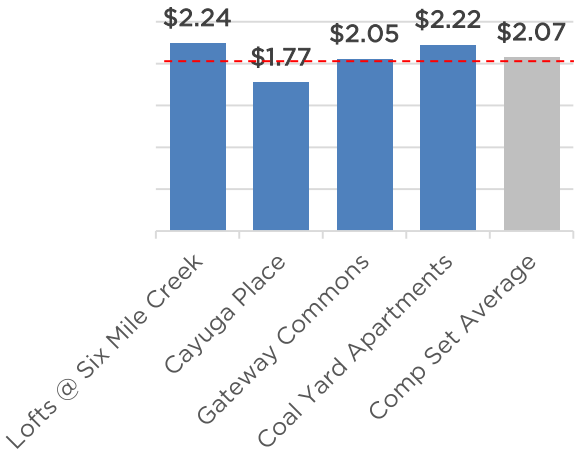
Property	Location	Status	# of Units
323 Taughannock	Waterfront	Planning	20
DeWitt House (Former Library)	Downtown	Planning	60
Carey Building	Downtown	Construction	20
Chain Works District	South Hill	Planning	900+/-

See **Appendix 6** for details about each comparable residential project.

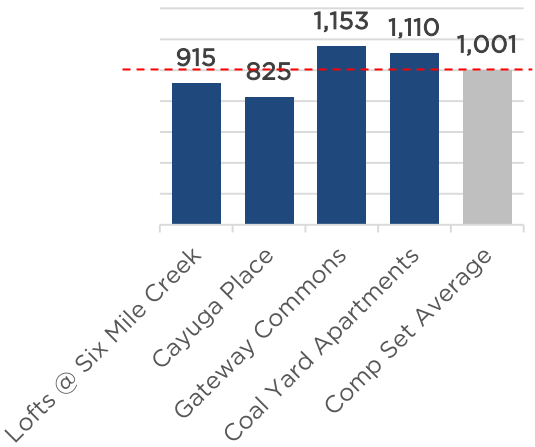
Residential Rental Rates / Unit Size

The monthly rental rates among recently built (completed) projects averages just over two ($2) dollars per square foot (see below). The average unit size is 1,000 square feet (see below). The analysis assumes above average multifamily rents at $2.15 per square foot, but at a modest discount from downtown projects. The multifamily unit sizes are assumed to meet the average size of 1,000 square feet.

Avg. Monthly Rents PSF



Average Unit Size (SF)



Estimated multifamily rent:
$2.15 per Sq. Ft.

Estimated multifamily unit size:
1,000 SF/unit

Residential | Key Observations

- The NYSDOT site will represent the first large-scale waterfront multifamily development in Ithaca.
    - Opportunities: exclusivity, access to the waterfront and Ithaca Farmer's Market, views to the south and west, adjacent to rowing facilities for Cornell University and Ithaca College, stimulus to economic development of adjacent properties.
    - Challenges: unproven market, adjacent land use character, access and connectivity to downtown and neighborhoods across Rt. 13.

- The NYSDOT site lacks direct access to Downtown amenities and will require a more robust suite of on-site amenities to achieve comparable rents projected.
- Local market dynamics place a premium on rental product over for-sale residential products, although a mix of unit formats is recommended to support the pace of absorption.
- Projected absorption in the local rental market (including the NYSDOT site) is 100 – 150 units per year, of which this site could capture a significant percentage.

Hotel Market Context

Lodging was another land use identified as having potential on the NYSDOT site in the County and City comprehensive plans. The current local hotel market was studied to assess the potential for inclusion in the redevelopment alternatives. The following hotel / lodging statistics were identified;

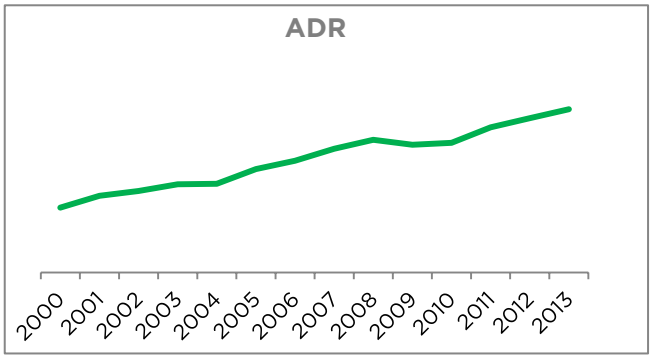
- There are **1,656** total keys (doors) in Tompkins County
- Over the past 10 years, **255 keys** have been added
- There are **288 keys** currently planned or under construction
- Hotel properties have an average age of **30 years**. New construction will likely replace outdated hotel products rather than add to the total supply.

Two new significant Downtown hotel developments signal demand for new product designed to primarily serve the business and academic traveler.

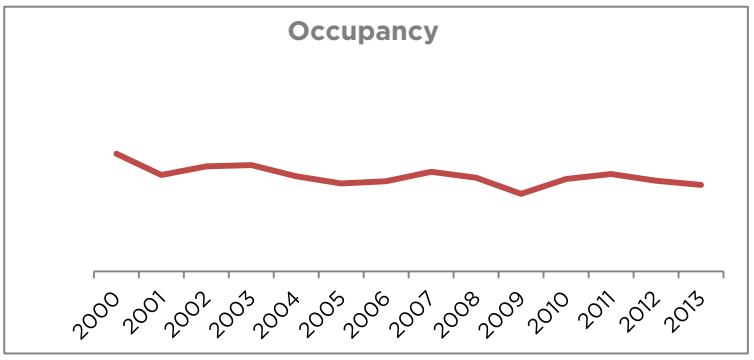
Marriott
In development
159 keys
$32M project cost

Hilton Canopy
Proposed
129 keys
$19M project cost

The average daily room rate (ADR) has risen over the past 10 years with only a modest impact (decline) in the overall occupancy rates countywide.



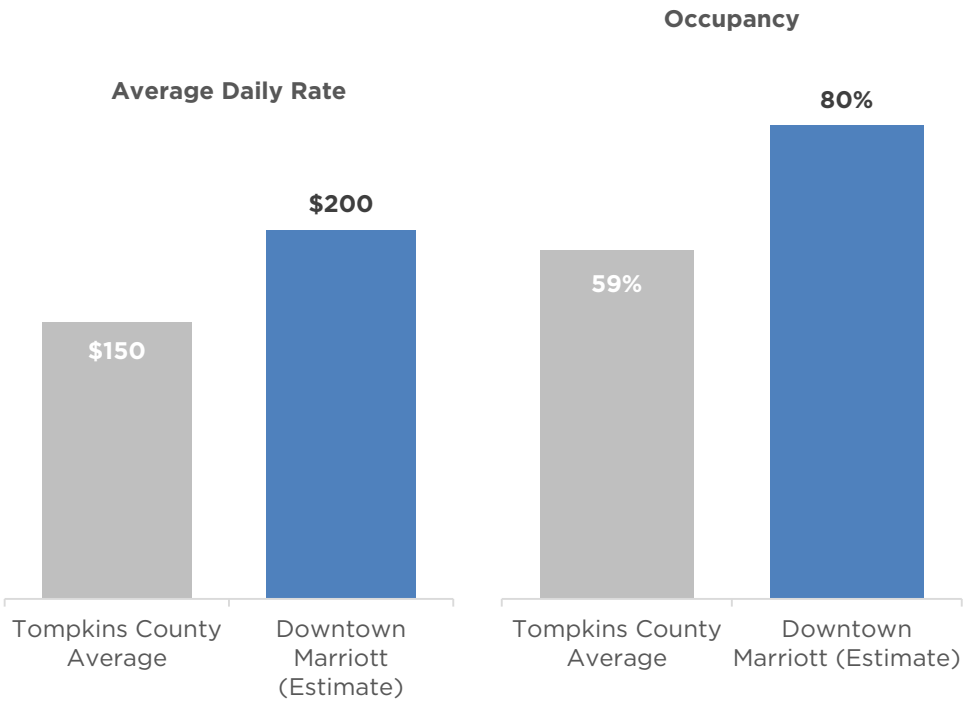
Avg. annual rate: **4%**



Avg. annual rate: **(1%)**

The average ADR and occupancy rates are brought down by aging, less favored product. Pipeline projects in planning and development are forecasting ADR's near $200 / key and occupancy near 80%.

For the purposes of this analysis we are assuming room rates and occupancy above the county average, but at a steep discount compared to new Downtown hotel products.



Estimated ADR: **$165**

Estimated Occupancy: **65%**

Hotel | Key Observations

A waterfront hotel would benefit from above market summertime occupancy and rates, but the sites remote location would weaken off-season performance compared to new Downtown product.

- The local market could support 100+ additional keys, yet risks related to seasonality and access may deter developers from investing on the water over alternative Downtown sites.
- Hotel Program Features
  - 120+ rooms to support fixed project costs
  - Possible destination restaurant and / or meeting space
  - Target flags such as Hyatt or Starwood (major brands without Ithaca presence)

Valuation Program Assumptions

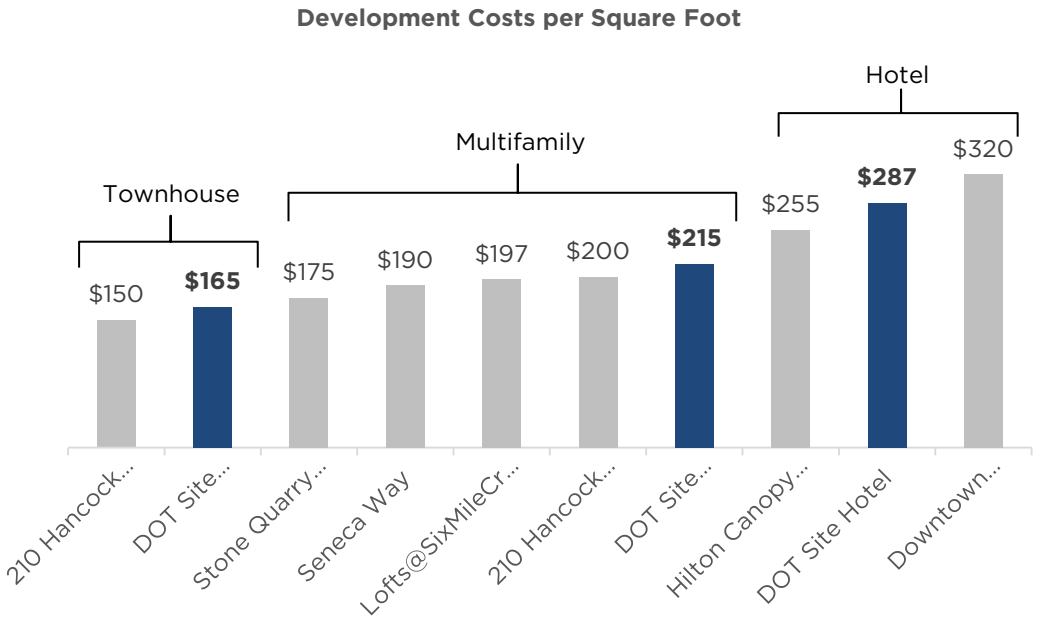
The conceptual development alternatives presented in section 4 included the following land use program elements:

Mixed Use	Hotel / Residential	Maximum Density Res.
84 Multifamily Units	**52** Multifamily Units	**137** Multifamily Units
46 Townhouse Units	**10** Townhouse Units	**0** Townhouse Units
14,160 SF Commercial	**6,450 SF** Commercial	**13,950 SF** Commercial
	124 Room Hotel	
346 parking spaces	**286** parking spaces	**378** parking spaces

- All income and cost assumptions are high-level estimates, as the proposed conceptual development plans have no direct comparables. Findings are meant to guide the County and NYSDOT's disposition strategy rather that predict the actual sale value.
- Assume each concept development alternative is constructed over a 3-year period in a single phase.
- The Ithaca Farmer's Market remains in place and expands according to current plans.

Cost Assumptions

Development costs vary by use however it is estimated for the purposes of this analysis that costs for all use types exceed local comparables by approximately10% due to geotechnical conditions. The site does however, offer construction advantages over downtown properties with sufficient site capacity for staging, equipment and material storage and no requirements for work zone safety measures in a public right-of-way.

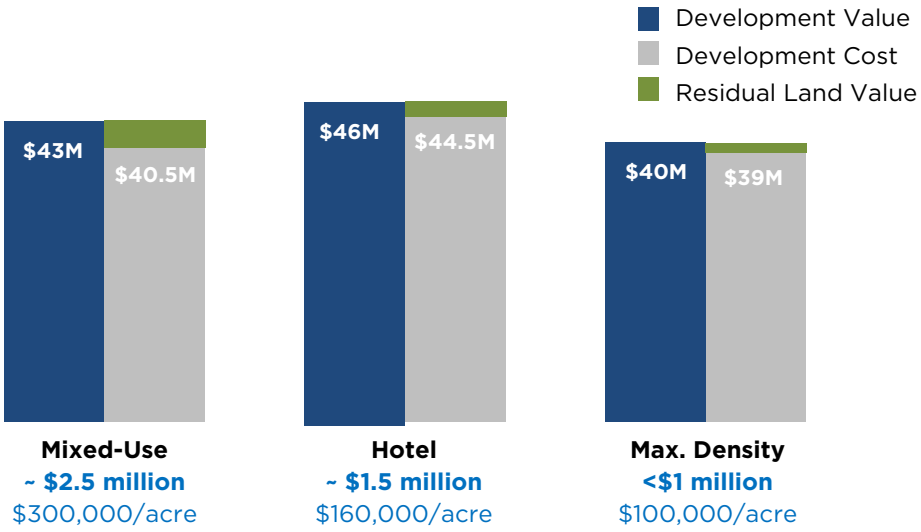


Residual Land Value Analysis

Development Value *Stabilized – Year NOI ÷ Capitalization Rate* **−** **Development Cost** *Hard Costs + Soft Costs + Developer Profit* **=** **Residual Land Value** *Project Value Available to Land Owner*

Note: NOI is acronym for Net Operating Income

Land Value Estimated Value by Conceptual Development Plan



General Assumptions | Public Benefits

The analysis estimated two forms of public benefit resulting from the proposed development plan: fiscal (tax) benefits and job creation. Analysis assumes project is not eligible for tax abatements or other public subsidy.

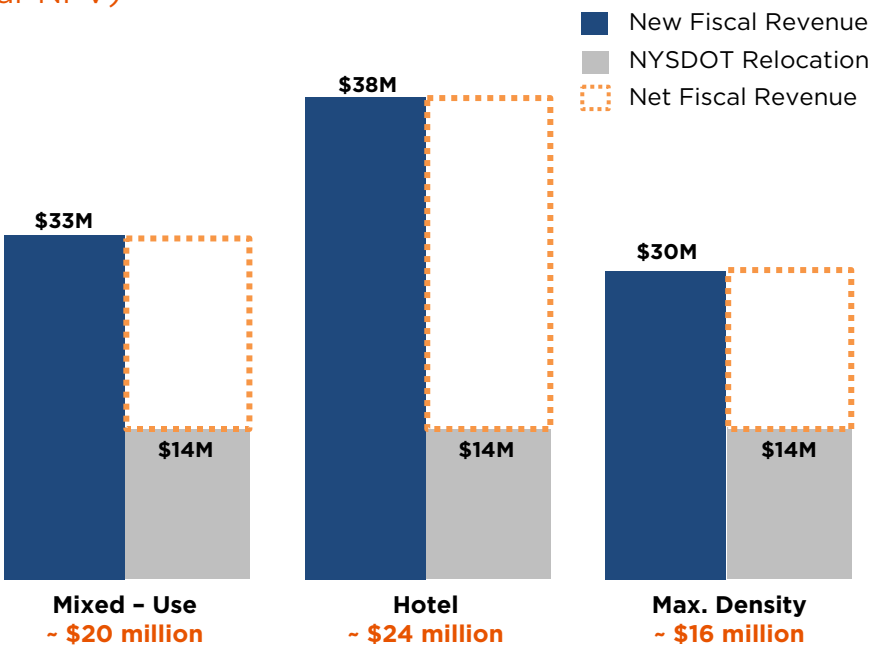
Fiscal Benefit Analysis:

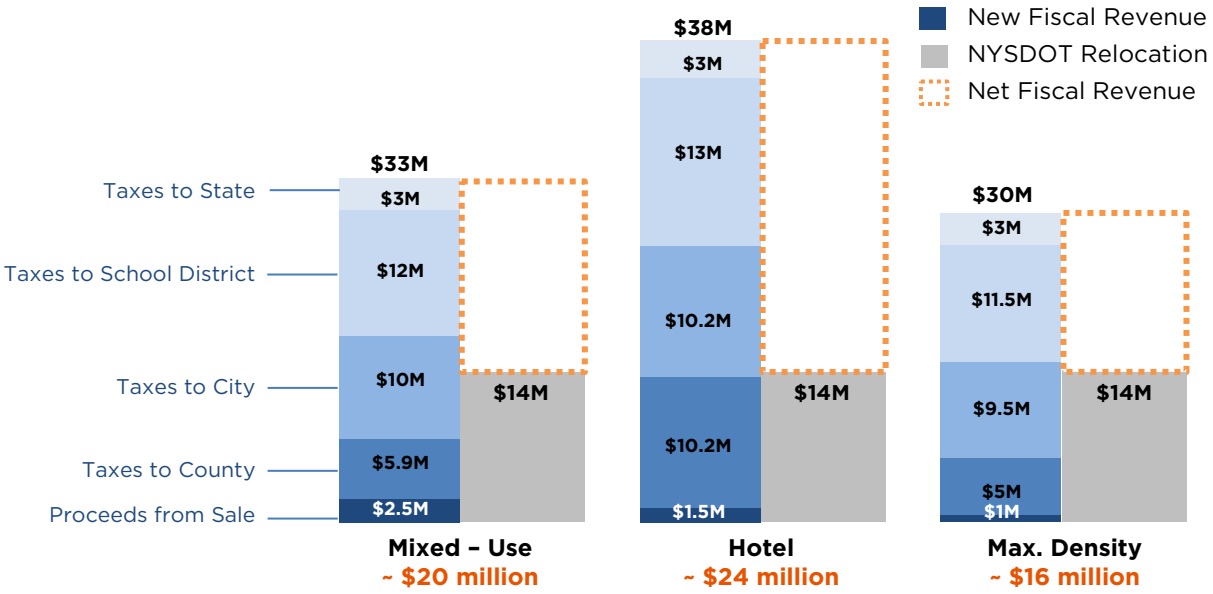
- Considers net direct tax revenues from ongoing operations, including property, personal income, school district and hotel taxes, as well as City of Ithaca sidewalk charges. Additional fiscal benefits will result from construction and indirect from construction and operations.
- Considers the cost of relocating the NYSDOT facility (estimated at $14M) but does not consider the cost of delivering additional municipal services, for which more detailed analysis is required.
- Valued total benefits as the present value of future tax proceeds at a 5% discount rate.

Job Creation Analysis

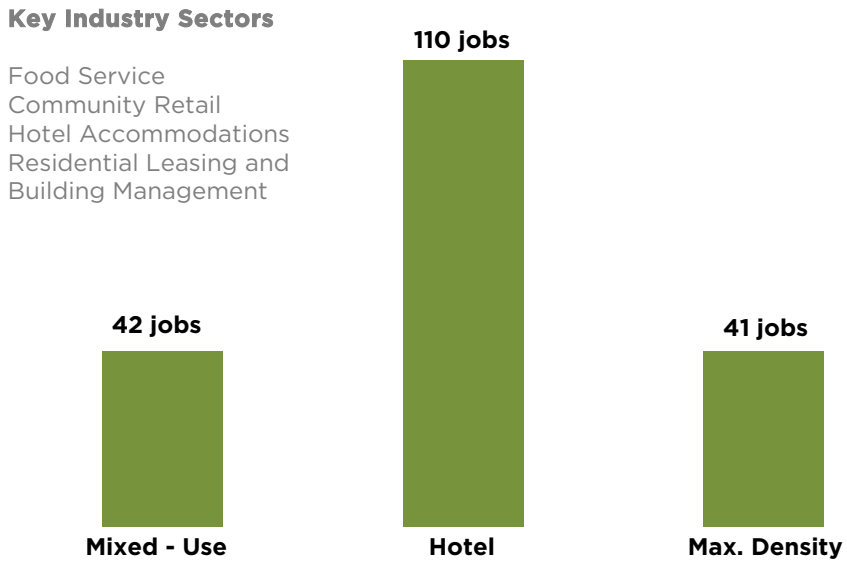
- Considers estimated ongoing employment related to on-site uses. Additional jobs will result from project construction and indirect and induced effects of construction and operations.
- Expresses job totals as full-time equivalent employees.

Public Benefits: Estimated Net Fiscal Benefit Overall (20-Year NPV)





Public Benefits Estimated Net Direct Full-Time Equivalent (FTE) Jobs



Market Conclusions

The highest and best use was determined to be the mixed multifamily – townhouse residential concept (no. 2). It was also determined that the land sales proceeds alone will not be sufficient to cover estimated relocation cost. However the development will generate significant incremental tax revenue to the State, County, City and School District **(Figure 7).**

The redevelopment of the NYSDOT site will create broader catalytic economic benefits in the immediately adjacent neighborhood (Farmer's Market, Mirabito Petroleum and Carpenter Park). The NYSDOT will realize both operational and workforce satisfaction benefits from the new facility in Dryden. With a facility constructed in 1958 there is always the potential for costly repairs to the structure and utility systems. The NYSDOT will realize additional cost savings by consolidating the Cortland County operations at the Dryden facility.

Another public benefit created by this project is the disposition of the NYSDOT residency facility in Cortland. The NYSDOT has committed to donating their existing facility on NY Route 281 to SUNY Cortland to serve as the central maintenance facility for the college. The campus is located just to the north across the rail line from the NYSDOT site, providing easy access without consuming valuable campus property.

Figure 8 presents the tax rate assumptions that was used for fiscal modeling and revenue projections.

Figure 7: Projected tax revenues

Concept 1: Hotel	NPV	Year 1	Year 5	Year 10	Year 20
County	$10,175,147	$637,517	$717,342	$831,597	$1,117,596
City	$10,171,815	$637,141	$717,108	$831,324	$1,117,230
School District	$13,125,937	$822,180	$925,371	$1,072,759	$1,441,699
State	$2,950,607	$184,820	$208,016	$241,148	$324,083
Total	**$36,423,506**	**$2,281,658**	**$2,567,837**	**$2,976,828**	**$4,000,608**

Concept 2: Mixed Use	NPV	Year 1	Year 5	Year 10	Year 20
County	$5,895,642	$369,290	$415,640	$481,840	$647,553
City	$10,101,431	$632,732	$712,146	$825,572	$1,109,500
School District	$12,496,898	$782,779	$881,025	$1,021,349	$1,372,608
State	$3,092,879	$193,731	$218,046	$252,775	$339,709
Total	**$31,586,850**	**$1,978,532**	**$2,226,857**	**$2,581,536**	**$3,469,370**

Concept 3: High Density	NPV	Year 1	Year 5	Year 10	Year 20
County	$5,539,213	$346,964	$390,512	$452,710	$608,404
City	$9,443,200	$591,502	$665,741	$771,776	$1,037,202
School District	$11,602,774	$726,773	$817,989	$948,274	$1,274,401
State	$3,064,025	$191,924	$216,012	$250,417	$336,540
Total	**$29,649,212**	**$1,857,163**	**$2,090,254**	**$2,423,177**	**$3,256,547**

Figure 8: Tax Assumptions

City, State & County Tax Assumptions

Tax	Rate		Notes
City Property Tax Rate	$0.0129	per $ value	Assessment based on capitalized value @ 7%
County Property Tax Rate	$0.0069	per $ value	Assessment based on capitalized value @ 7%
School Property District Tax Rate	$0.0181	per $ value	Assessment based on capitalized value @ 7%
City Sales Tax Rate	2%	rate	
County Sales Tax Rate	2%	rate	
State Sales Tax Rate	4%	rate	
City Sales Tax Rate	6	per retail SF	Assumes $300/sf of annual sales
County Sales Tax Rate	6	per retail SF	Assumes $300/sf of annual sales
State Sales Tax Rate	12	per retail SF	Assumes $300/sf of annual sales
City Sidewalk Fee	$0.015	per total SF	+$140 base fee
County Room Tax	$0.050	per room revenue	

New York State Personal Income Tax Assumptions

Sales Tax Calculator				
Income Bracket		Rate Schedule		
Over	Up to	Base tax	Plus	Over
$0	$8,300	$0	4.00%	$0
$8,300	$11,450	$332	4.50%	$8,300
$11,450	$13,550	$474	5.25%	$11,450
$13,550	$20,850	$584	5.90%	$13,550
$20,850	$78,400	$1,015	6.45%	$20,850
$78,400	$209,250	$4,727	6.65%	$78,400

General Assumptions

Assumption	
Inflation Rate	3%
Discount Rate	5%
DOT relocation cost	($13,800,000)

In our original analysis (above), to calculate potential future property tax revenue, HR&A used the total market value of each development program (i.e. stabilized net operating income divided by a market capitalization rate) as a proxy for assessed value. Subsequently, HR&A learned that the **Tompkins County Department of Assessment** uses a more conservative approach when estimating assessed value for proposed developable property, and (based on market context) estimated average assessed values for the proposed development as follows:

Use	Est. Assessed Value (Tompkins Co.)	Unit
Multifamily	$140,000	Per unit
Townhouse	$280,000	Per home
Hotel Room	$100,000	Per key
Retail / Restaurant	$150	Per square foot

These unit averages resulted in adjusted estimated assessed values by scenario as follows:

	Hotel Scenario	Mixed-Use Scenario	Max Density Scenario
Estimated Assessed Value	$23,400,000	$26,800,000	$21,300,000

Using these estimated assessed values, HR&A estimated potential future tax revenues to the State, County, City, and School District over 20 years.[2] The following table summarizes total revenues to all jurisdictions in Years 1, 5, 10, and 20, as well as the present value of tax revenues over 20 years, for each scenario.

	NPV	Year 1	Year 5	Year 10	Year 20
Hotel Scenario	$21,000,000	$800,000	$1,700,000	$2,000,000	$2,700,000
Mixed-Use	$19,900,000	$700,000	$1,600,000	$1,900,000	$2,500,000
Max. Density Scenario	$16,800,000	$600,000	$1,400,000	$1,600,000	$2,100,000

[2] Our analysis assumes that existing tax rates for all jurisdictions remain constant after development (i.e. that the County and City do not adjust rates downward based on the increase in taxable base resulting from development.)

The following table provides more detailed estimates of annual and total tax revenues by jurisdiction, as well as proceeds from sale and net proceeds to all jurisdictions. Note that, due to rounding, figures in this table may not sum precisely.

Estimated Annual Tax Revenues (Stabilized Year)

All values are in $2016	Hotel Scenario	Mixed-Use Scenario	Max Density Scenario
Estimated Assessed Value	$23,400,000	$26,800,000	$21,300,000
City Property Tax	$302,000	$345,000	$274,000
County Property Tax	$161,000	$184,000	$146,000
School District Property Tax	$424,000	$484,000	$385,000
City Sales Tax	$54,000	$72,000	$71,000
County Sales Tax	$54,000	$72,000	$71,000
State Sales Tax	$109,000	$144,000	$142,000
State Personal Income Tax	$81,000	$49,000	$50,000
County Room Tax	$243,000	$0	$0
City Sidewalk Charge	$2,000	$3,000	$2,000
County Total	$458,000	$256,000	$217,000
City Total	$358,000	$420,000	$347,000
School District Total	$424,000	$484,000	$385,000
State Total	$190,000	$193,000	$192,000
Total Annual Tax Revenue	$1,430,000	$1,353,000	$1,141,000

Present Value of 20 Year Tax Revenues			
All values are in $2016	Hotel Scenario	Mixed-Use Scenario	Max Density Scenario
To County	$6,700,000	$3,800,000	$3,200,000
To City	$5,300,000	$6,200,000	$5,100,000
To School District	$6,200,000	$7,100,000	$5,600,000
To State	$2,800,000	$2,800,000	$2,800,000
NPV To All Local Jurisdictions	**$21,000,000**	**$19,900,000**	**$16,700,000**

Note: Tax analysis assumes immediate sale, 3-year buildout, and stabilization over three years. Year 1 for the 20-year tax capture is the year of project completion.

6 Project Financing & Schedule

Project Financing

The successful financing of the NYSDOT Maintenance Facility hinges on the basic assumptions of timing and which public entity assumes the lead role. After extensive conversations with representatives from Tompkins County IDA and their bond counsel (Harris Beach) it is clear there is no magic answer to financing the construction of the new facility in Dryden. The fundamental issue is that the project schedule includes the following steps:

1. NYSDOT and Tompkins County execute a new memorandum of understanding for maintenance of 135(+/-) lane miles of state roads on the west side of the Cayuga Inlet or identify a satellite location for NYSDOT operatons serving that area.
2. Design and construction of the new NYSDOT Maintenance Facility in Dryden
3. Physically move all equipment and operations from Ithaca and Cortland to new facility, abandon existing parcels
4. Transfer title of property from NYSDOT to Tompkins County or City of Ithaca
5. Solicit development RFP for Ithaca property
6. Select a developer, prepare designs, and secure entitlements
7. Construct the residential and commercial project
8. Occupancy of units
9. Commence real estate tax payments

There are several challenges to make this transition and redevelopment a reality and it does involve risk. The concept of paying for the NYSDOT relocation prior to receiving tax revenues must be borne by a public entity, which is highly speculative and will require convincing state officials, county legislators, city council and the tax payers.

The debt service on the estimated $14m capital cost (bond fees and interest not included) would be paid in full by the state, county, or city until the private development tax revenue stream started, presumably 3-5 years from the time NYSDOT relocates to Dryden. Per discussions with Michael Stamm, Heather McDaniel and Russ Gaenzle (Harris Beach) the Tompkins County IDA would not have the balance sheet required to take on the interim-financing obligation. Only Tompkins County or the City of Ithaca could progress this concept, assuming the NYSDOT does not pay for the project in full.

Through a financing mechanism called Pilot Increment Financing (PIF), the TCIDA can divert all or a portion of the property taxes generated by the project to pay down debt service. A PIF requires approval of all of the taxing authority impacted, in this case, the Ithaca City School District, the City of Ithaca and Tompkins County. PIFs are usually structured so that each taxing authority contribute a pro rata share. It would not be typical, for example, to have the city's taxes diverted and not the other taxing authorities. Accordingly, there appears to be four alternative scenarios for financing the NYSDOT Maintenance Facility relocation to the Village of Dryden, including:

5. NYSDOT financing (100%)
6. Shared financial participation between State, County, City and School

District
7. Private design/build/lease back
   - NYSDOT lease payment (100%)
   - Shared lease payment
8. Private development of both the maintenance facility and waterfront parcel

Scenario 1

The relocation of the Ithaca NYSDOT maintenance facility has been contemplated for quite some time by Tompkins County, the City of Ithaca and the NYSDOT (Region 3). To that end, the NYSDOT purchased a 10.8 acre site in the Village of Dryden adequate not only for the Ithaca DOT facility, but for consolidation of both the Ithaca and Cortland maintenance facilities. All efforts should be made in a joint effort between the three parties to request full funding of the project from NYSDOT officials in Albany. Assistance from elected representatives in the NYS Assembly (Barbara Lifton) and Senate (Seward, O'Mara and Nozzolio) should be sought. This study has shown there are sufficient fiscal benefits (tax revenues and job creation) as well as the potential for positive economic development spin-off in the Route 13 / Cayuga Inlet corridor to warrant legislative support.

One side note: Former NYSDOT Regional Director, Carl Ford, PE, stated that the official mechanism for the transfer of title will be an issue to address sooner than later. Once the maintenance facility is relocated, the NYSDOT would deem the property as 'excess'. A prior memorandum of understanding executed between the NYSDOT and Tompkins County agreed in concept to transfer the property to the County. A new agreement addressing the transfer of title will need to be executed.

Scenario 2

This alternative proposes that the cost of financing the relocation of the NYSDOT Maintenance Facility would be shared by the state and local tax jurisdictions from increased tax revenues generated by the project. The estimated total value of the mixed-use development scenario (Concept #2) is $43 million dollars at full build out. It is anticipated that the Consolidated Funding Application (CFA) could contribute up to 1/5th of the total project value, which in the case of Concept #2 could total $8.6 million dollars. Combined with the projected land sale amount of $2.5 million would provide $11.1 million of the $14 million needed for the facility in Dryden. That would leave a gap in financing of $2.9 million to be provided by local funds.

An alternative and more aggressive scenario would be to combine the project values to include the relocation of the NYSDOT facility to the Dryden site as well as the redevelopment of the Ithaca waterfront site. The two projects together have a total value of $57 million dollars. Applying the same funding percentages, the possible CFA contribution could be $11.4 million. With the land sale value of $2.5 million, the local share requirement would total $100,000.

$43M Project Value	**Amount**	**$57M Project Value**	**Amount**
Estimated Project Cost	$14M	Estimated Project Cost	$14M
New York State Share		New York State Share	
Sale of Land	$2.5M	Sale of Land	$2.5M
CFA/URI Funds (1/5th Project Value)	$8.6M	CFA/URI Funds (1/5th Project	$11.4M
Sub Total	$11.1M	*Sub Total*	$13.9 M
Local Share	**$2.9M**	**Local Share**	**$100K**

The $2.5m in revenue anticipated from the sale of the 7.6 acre parcel will need to be financed, preferably by New York State until transfer of title.

A general obligation bond or Pilot Increment Financing (PIF) would be paid by diverting real estate taxes from the fully developed project (3-5 years out) and shared equally (as previously stated) by the county, city and school district. The tax revenue projections prepared by HR&A Advisors indicate there is over $1.6m of annual tax revenue (refer to Figure 6 in Market Conclusions) available to pay the debt service on the $100K or $2.9M local share of the project costs. One hundred (100%) percent of the tax revenue would not be required; therefore each taxing entity would receive a portion of the revenue for their general fund. **Figure 9** below presents the debt analysis for various bond amounts needed to finance the local share (city / county / school district) of the cost to construct a new maintenance facility in the Village of Dryden. The figure compares the annual payment for two alternative bond amounts; $100K, and $2.9M. The $100K and $2.9M amounts correspond to the chart on the page 30.

The figure also presents the projected new tax revenues (Year 1*) anticipated from the redevelopment project and the anticipated total 'surplus' tax revenue available after payment of the bond debt service.

Note that the closing costs, interest rate and repayment term were based on discussions with representatives of Harris Beach, bond counsel for Tompkins County IDA. Actual terms may differ once a firm project financing structure has been prepared and presented to the City and / or County.

Upon award of Upstate Revitalization Initiative (URI) funds, the County could ask the State to front the funding required to construct the new facility in Dryden. Any local share of these financing costs would be reimbursed through tax revenues received from the completed waterfront development project.

City/County / School District Debt Analysis

Mortgage Calculator	**Low**	**High**
Principal	$100,000	$2,900,000
Underwriting Fee	2%	2%
Reserve and Other Fees	5%	5%
Principal + Fee	$107,000	$3,103,000
Interest Rate	4%	4%
Term	10 years	10 years
Annual Payment	***$13,200***	***$357,540***
Tax Increment (Year 1)*		
City of Ithaca	$632,732	$632,732
Tompkins County	$369,290	$369,290
School District	$782,779	$782,779
Total Local Tax Increment	$1,784,802	$1,784,802
Surplus in Tax Increment	**$1,771,602**	**$1,427,262**

Figure 9:
Debt Analysis

*Year 1 assumes full occupancy at the completion of a three year construction project.

Alternative Assessment Scenario

Based on the alternative assessment scenario presented by the Tompkins County Department of Assessment, the following figure presents the same annual local share payments based on the $43M and $57M project values. The tax revenues are presented based on lower assessment and the amount of surplus available (Tax revenue – annual payment).

Figure 10: Debt Analysis Tompkins County Assessment Assumptions

City/County / School District Debt Analysis
Alternative Assessment Scenario

Mortgage Calculator	**Low**	**High**
Principal	$100,000	$2,900,000
Underwriting Fee	2%	2%
Reserve and Other Fees	5%	5%
Principal + Fee	$107,000	$3,103,000
Interest Rate	4%	4%
Term	10 years	10 years
Annual Payment	***$13,200***	***$357,540***
Tax Increment (Year 1)*		
City of Ithaca	$420,000	$420,000
Tompkins County	$256,000	$256,000
School District	$484,000	$484,000
Total Local Tax Increment	$1,160,000	$1,160,000
Surplus in Tax Increment	**$1,146,800**	**$802,460**

Scenario 3

Fairly early in the project (April 2015), Beebe Construction of Utica reached out to Tompkins County Planning representatives and asked if a design/build/leaseback of the NYSDOT Maintenance Facility would be considered a viable financing option. Private financing of municipal facilities is not a new concept. Once plans and cost estimates were advanced by the project design team, they were forwarded to Beebe Construction and the Pike Company (Rochester and Albany) as reference for preparation of a proposal for design/build/leaseback of a new facility in Dryden. Both firms were asked to prepare annual payment plans assuming rent schedules for a 15 year term and 30 year term, triple net lease. Also, at the end of the lease period the NYSDOT would have the option to purchase the property and all facilities in fee for $1.

The Beebe Construction proposal includes annual escalators with annual payments averaging $2.06M for a 15 year lease term and $1.65M for a 30 year term. This would put the total project cost at $31m for 15 years and almost $50M for 30 years. Assuming the state (CFA), NYSDOT and local governments shared these payments, it could be challenging to justify the total project to the legislature and city council, especially if payments exceed annual revenues from real estate taxes.

The Pike Company proposal lacked the detail of the Beebe Construction proposal but the lease payments were substantially similar albeit slightly lower.

Scenario 4

The fourth option would be an alternative to seek private developer proposals to do both projects; construct a new maintenance facility in Dryden and then develop the 7.6 acre waterfront parcel. The intent would be to divert the financial risk (and assumed reward) to the private sector. The mechanisms to accomplish this scenario present multiple challenges. First is how to address the transfer of title for both properties (Dryden and Ithaca). Secondly, developers and their lenders are in the business of reducing risk. They would certainly seek government assurances, loan guarantees and most likely long term tax abatements. This would contradict one of the clearly state objectives of the project since inception which is to generate tax revenue.

The final issue to address is probably the first issue which should be vetted with both the Tompkins County and City of Ithaca officials: that is, who assumes the risk on the short term debt required until full build out (private development) of the waterfront parcel? Lending institutions will want to work with either the City or County who have a balance sheet sufficient to assume the short term risk. The lenders will capitalize the interest (an additional project cost) while development is in process.

A concurrent step is to begin discussions with well established, credit worthy private developers to gauge their interest in the project. One point made by the Tompkins County IDA representatives was that Pilot Increment Financing (PIF) cannot be used on projects with “for-sale” residential products. Developers will need to be informed that residential units will have to be rented until the debt obligation is retired.

Project Schedule - Next Steps

We offer the following tasks as the next steps to be taken in the process of securing the funding to pay for the relocation of the NYSDOT Maintenance Facility to the Village of Dryden.

Present the study recommendations to the;

- County Legislators and City Council
- City School District (Superintendent and Board)
- NYS Assembly and Senate (Lifton, Seward, O'Mara and Nozzolio) and staff
- NYS DOT Headquarters in Albany (Capital Projects Group)
- Regional Economic Development Council (REDC), Empire State Development

Once these officials and organizations have been engaged in securing funding, a schedule of additional steps can be planned including;

- Design and Engineering of NYSDOT facility
- Construction
- Property title transfer of Ithaca property
- Development RFP solicitation
- Waterfront parcel design, entitlements and construction
- Legislative actions and agreements required for bonding and tax diversion

Refer to **Figure 11** for implementation tasks and proposed schedule.

NYSDOT Maintenance Facility/ Private Development Schedule

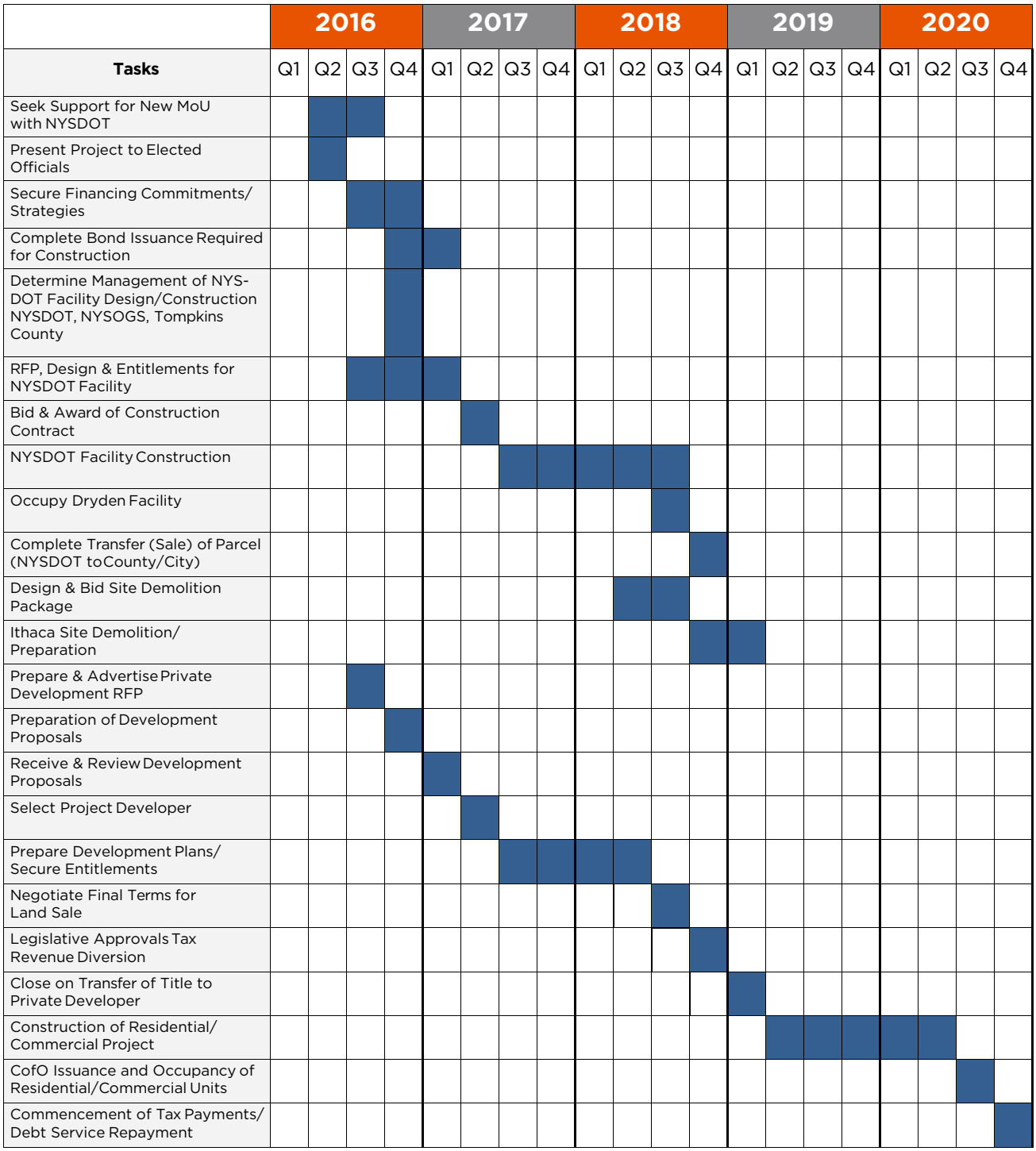


Figure 11

Appendix 1:
Dryden Facility Cost Estimates

ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST

Schematic

PROJECT: DOT Facility Relocation Schematic Estimate | **PROJECT NO.** 144021

LOCATION: Dryden Site | **DATE:** June 5, 2015

PREPARED BY: Fisher Associates Staff

SITE COSTS

** Includes disposal cost for demo items, ** Includes Equipment, Overhead, and Profit*

	ITEM-DESCRIPTION	QUANTITY NO. UNITS	QUANTITY UNIT MEAS.	MATERIAL* and LABOR** PER UNIT	MATERIAL* and LABOR** COST
A.	**Site Preparation**				
1	Strip and Stockpile Topsoil	2,165	cy.	$4.38	$9,483
2	Strip and export topsoil	4,835	cy	$10.50	$50,768
3	Erosion Control check dams (at existing ditches)	2	ea.	$425.00	$850
4	Erosion Control Silt Fence	1,800	lf	$4.50	$8,100
5	Erosion Control Stabilized construction entrance	70	cy	$38.55	$2,699
6	Temporary Chain Link construction fence (New Fence)	500	lf	$8.95	$4,475
7	Temporary Swing Gates (double 24-ft wide) (New Gate)	1	ea	$2,649.00	$2,649
8	Sawcuts (at existing roadway crossings)	300	lf	$2.62	$786
	Sub-Total				*$79,809*
B.	**Earthwork (General)**				
1	Compact Subgrade (Static roller)	32,730	sy.	$0.36	$11,783
2	Topsoil Placement	2,165	cy.	$7.00	$15,155
3	Cuts and Fills	20,250	cy	$8.50	$172,125
4	Building Subbase (12-in Type 2 subbase)	2,300	cy	$37.00	$85,100
5	Woven Geotextile	6,800	sy.	$1.59	$10,812
	Sub-Total				*$294,975*
C.	**Flexible Paving Improvements**				
1	"1.5 in. Thick Asphalt Wearing Course" (standard duty)	2,040	sy.	$8.01	$16,340
2	"2 in. Thick Asphalt Binder Course" (standard duty)	2,040	sy.	$9.50	$19,380
3	"12-in. Thick Type 2 Sub-Base Course" (standard duty asphalt area)	2,040	sy.	$15.05	$30,702
4	Compaction of subbase (6-in lifts, 4 passes)	680	ecy	$0.75	$510
5	"1.5 in. Thick Asphalt Wearing Course" (heavy duty)	3,045	sy.	$8.01	$24,390
6	"2 in. Thick Asphalt Binder Course" (heavy duty)	3,045	sy.	$9.50	$28,928
7	"3 in. Thick Asphalt Base Course" (heavy duty)	3,045	sy.	$18.69	$56,911
8	"12-in. Thick Type 2 Sub-Base Course" (heavy duty asphalt area)	3,045	sy.	$15.05	$45,827
9	Compaction of subbase (6-in lifts, 4 passes)	1,015	ecy	$0.75	$761
10	"12-in. Thick Type 2 Sub-Base Course" (heavy duty gravel area)	15,326	sy.	$15.05	$230,656
11	Woven Geotextile	20,411	sy.	$1.59	$32,453
12	"1.5 in. Thick Asphalt Wearing Course" (at utility crossings)	32	sy.	$8.01	$256
13	"2 in. Thick Asphalt Binder Course" (at utility crossings)	32	sy.	$9.50	$304
14	"12-in. Thick Type 2 Sub-Base Course" (at utility crossings)	32	sy.	$15.05	$482
	Sub-Total				*$487,902*
D.	**Rigid Paving Improvements**				
1	"8-in thick reinforced concrete" (aprons)	1,585	sy.	$40.39	$64,018
2	"6-in. Thick Type 2 Sub-Base Course"	1,585	sy.	$8.20	$12,997
3	"8-in thick reinforced concrete" (fueling station)	290	sy.	$40.39	$11,713
4	"6-in. Thick Type 2 Sub-Base Course"	290	sy.	$8.20	$2,378
5	"8-in thick reinforced concrete" (dumpster pad)	8	sy.	$40.39	$323
6	"6-in. Thick Type 2 Sub-Base Course"	8	sy.	$8.20	$66
7	Woven Geotextile	1,883	sy.	$1.59	$2,994
8	Concrete Loading Ramp	1	ls	$22,500.00	$22,500
9	Concrete Sidewalks 4-in thick (including scoring pattern)	4,635	sf	$4.45	$20,626
10	Concrete Sidewalk subbase (6-in thick Type 1 stone)	515	sy.	$7.50	$3,863
11	Concrete Sidewalk Expansion Joints (1/2" x 6")	227	lf	$1.99	$452
	Sub-Total				*$141,929*

Site Costs Continued to Page 2

E.	**Site Amenities**					
1	Picnic Tables	1	ls	$1,000.00	$1,000
2	Benches and Bike Racks	1	ls	$2,000.00	$2,000
3	Facility Sign	1	ls	$11,000.00	$11,000
4	"6-in high granite curb	1,214	lf	$33.05	$40,123
5	Road pavement striping	1,400	lf	$0.27	$378
6	ADA pavement marking	3	ea	$59.40	$178
7	ADA signage	3	ea	$280.00	$840
8	Parking Lot pavement striping	1,320	lf	$8.80	$11,616
9	"8-ft high chain link fence w/barbed wire	2,100	lf	$43.25	$90,825
10	"26-ft wide sliding gate	3	ea	$7,489.00	$22,467
11	Bollards	82	ea	$821.00	$67,322
12	Bollard covers	82	ea	$90.00	$7,380
	Sub-Total				***$255,129***
F.	**Landscape**				
1	Seeded turf (temporary seed)	115,000	sf	$0.28	$32,200
2	Turf and Grasses- new seed lawn (Type 2)	115,000	sf	$0.33	$37,950
3	Trees (2.5 - 3" caliper)	8	ea	$600.00	$4,800
4	Trees (2" caliper)	4	ea	$400.00	$1,600
5	Evergreen Trees	20	ea	$340.00	$6,800
6	Shrubs (3 gal.)	50	ea	$61.00	$3,050
7	Shrubs (5 gal.)	15	ea	$67.50	$1,013
	Sub-Total				***$87,413***
G.	**Stormwater Utilities**				
1	"4-ft dia manhole w/top slab (6-ft deep)	6	ea	$1,800.00	$10,800
2	"5-ft dia manhole w/top slab (8-ft deep)	3	ea	$3,850.00	$11,550
3	"30-in dia frame and grate/cover	3	ea	$1,006.00	$3,018
4	"30-in x 30-in precast concrete inlet structure (6-ft deep)	3	ea	$3,050.00	$9,150
5	"Drainage Cleanouts	9	ea	$1,006.00	$9,054
6	"12-in dia sicpp	646	lf	$11.51	$7,435
7	"15-in dia. Sicpp	380	lf	$13.45	$5,111
8	"18-in dia. sicpp	400	lf	$20.50	$8,200
9	"24-in dia. sicpp	788	lf	$25.50	$20,094
10	Trenching (5' - 10' deep with trench box)	2,132	cy	$4.95	$10,553
11	Backfill (grass surface areas)	490	cy	$6.80	$3,332
12	Backfill (pavement surface areas)	85	cy	$43.50	$3,698
13	Pipe Bedding	1,148	cy	$43.50	$49,938
14	Bioretention area - mulch 4" thick	150	cy	$3.25	$488
15	Bioretention area - filter media 2.5' thick	1,115	cy	$30.50	$34,008
16	Bioretention area - drainage stone 1' thick	450	cy	$10.60	$4,770
17	Bioretention are- filter fabric	1,500	sy.	$2.90	$4,350
	Sub-Total				***$195,548***
H.	**Sanitary Sewer**				
1	"8-in dia. pvc	545	lf	$12.10	$6,595
2	"10-in dia. pvc	250	lf	$18.50	$4,625
3	"4-ft dia manhole w/top slab (6-ft deep)	1	ea	$2,306.00	$2,306
4	"4-ft dia manhole w/top slab (8-ft deep)	2	ea	$2,325.00	$4,650
5	"600 gpm oil/water separator	1	ea	$72,500.00	$72,500
6	"Sanitary cleanouts	4	ea	$1,006.00	$4,024
7	"Trenching (6 - 9' deep with trench box)	751	cy	$4.95	$3,717
8	Backfill (grass surface areas)	85	cy	$4.50	$383
9	Backfill (pavement surface areas)	340	cy	$43.50	$14,790
10	Pipe Bedding	221	cy	$43.50	$9,614
	Sub-Total				***$123,203***
I.	**Water Service**				
1	"6-in dia. D.I.	120	lf	$40.51	$4,861
2	"10-in dia. D.I.	1,775	lf	$67.50	$119,813
3	Trenching (5' - 8' deep with trench box)	1,580	cy	$4.95	$7,821
4	Backfill (grass surface areas)	525	cy	$4.50	$2,363
5	Backfill (pavement surface areas)	376	cy	$43.50	$16,356
6	Pipe Bedding	527	cy	$43.50	$22,925

Site Costs Continued to Page 3

7	Elbow (10" dia, 45 degree bend, D.I.)	6	ea	$1,465.38	$8,792
8	Tee (10" dia, D.I.)	7	ea	$1,375.00	$9,625
9	Thrust Blocks	18	ea	$139.01	$2,502
10	Valve (6" dia Gate Valve, C.I., 250 psi, mech joint w/ boxes)	6	ea	$890.00	$5,340
11	Valve (10" dia Gate Valve, C.I., 250 psi, mech joint w/ boxes)	3	ea	$1,550.00	$4,650
12	Hydrant	5	ea	$2,550.00	$12,750
	Sub-Total				*$217,797*
	TOTAL SITE COSTS				**$1,883,704**

BUILDING AND STRUCTURAL		QUANTITY		MATERIAL	
		NO. UNITS	UNIT MEAS.	PER UNIT	COST
ITEM-DESCRIPTION					
A.	**Office Building (Two-story):** Masonry, Steel Frame, Frost Walls, Slab on Grade, Pre-engineered Metal Panel siding, Drop Ceilings Standard Office Fit-up Space, Energy Efficient Windows and Doors (20% increase in Energy Code), Utilities to 5' out of wall	12,800	Sq. Ft.	$180.00	$2,304,000
	Mechanical - Roof Top Equipment (including A/C), Gas Fired Equip., Roof Ventilation System	12,800	Sq. Ft.	$20.00	$256,000
	Electrical - Power, Lighting, Fire Alarm, Telephone and Data	12,800	Sq. Ft.	$19.00	$243,200
	Plumbing - Toilet Rooms (Break rooms)	12,800	Sq. Ft.	$10.00	$128,000
	Elevator - Two Stop, Holeless, State and ADA Compliant (2 story structure)	1	LS	$70,000.00	$70,000
	Sub-Total				*$3,001,200*
B.	**Main Equipment/Storage:** Metal Panel Exterior, CMU Knee Walls, Insulation (Walls & Ceilings), Concrete Flooring, Overhead Doors, Basic Building Design, Ventilation System	26,425	Sq. Ft.	$52.00	$1,374,100
	Mezzanines (3 Each)	4,325	Sq. Ft.	$25.00	$108,125
	Mechanical - Masonry, Steel Frame, Boiler System (In-Floor Radiant)	26,425	Sq. Ft.	$14.00	$369,950
	Electrical - Power, Lighting, Fire Alarm	26,425	Sq. Ft.	$8.00	$211,400
	Plumbing - Water and Floor Drains	26,425	Sq. Ft.	$6.00	$158,550
	Sub-Total				*$2,222,125*
C.	**Mechanics Bay/Wash/Bridge Crew:** Metal Panel Exterior, CMU Knee Walls, Insulation (Walls & Ceilings), Concrete Flooring, Ventilation System	13,150	Sq. Ft.	$52.00	$683,800
	Mechanical - In-Floor Radiant and Exhaust, Dispenser Package	13,150	Sq. Ft.	$18.00	$236,700
	Electrical - Power, Lighting Fire Alarm, Telephone and Data	13,150	Sq. Ft.	$15.00	$197,250
	Plumbing - Water, Floor Drains, Air, Fluid Dispenser	13,150	Sq. Ft.	$16.00	$210,400
	Sub-Total				*$1,328,150*
D.	**Cold Storage Hopper Hangars:** Metal Panel Exterior, CMU Knee Walls	5,560	Sq. Ft.	$48.00	$266,880
	Mechanical - Exhaust System	5,560	Sq. Ft.	$6.00	$33,360
	Electrical - Power, Lighting Fire Alarm	5,560	Sq. Ft.	$10.00	$55,600
	Plumbing - Floor Drains	5,560	Sq. Ft.	$6.00	$33,360
	Sub-Total				*$389,200*
E.	**Salt Barn:** 12' High Concrete Reinforced Walls, Concrete Floors (Heavy Loads), 8" Concrete Reinforced, 12" Stone, and Apron	9,600	Sq. Ft.	$46.00	$441,600
	Salt Barn Roofing - Structural Frame, Fabric Roofing	9,600	Sq. Ft.	$12.30	$118,080
	Electrical - High Bay Interior Lighting, Telephone and Data	9,600	Sq. Ft.	$5.00	$48,000
	Sub-Total				*$607,680*
F.	**Other Building and Structural Elements**				
	Natural Gas Extension - Per NYSEG Requirements, 4-5m BTU Load	1	LS	$10,000.00	$10,000
	Site Electrical - Site Lighting, Electrical Feeds, Wall Packs Included, Road to Transformer and Transformer to Building	1	LS	$100,000.00	$100,000
	Bridge Crane Double Girder (15 Ton)	1	EA	$165,000.00	$165,000
	Lifts - Heavy Duty Four Post, Rotary Mod 30, Pedestal Mounted Controls, Basins Included, ALI Certified	2	EA	$150,000.00	$300,000
	Sprinkler System - Wet System with Fire Department Approval, Fire Code Requirement	34,900	Sq. Ft.	$6.00	$209,400
	Emergency generator (300 kw) - Serves Whole Building and Site	1	EA	$150,000.00	$150,000
	Fuel Tanks/Salt Barn Electrical - Home runs to Main Panel in Building	1	LS	$45,000.00	$45,000
	Wash Equipment - Drive-thru Touchless System, Undercarriage Wash, No Reclaim, Water to Oil/Water Separator and then Sanitary	1	EA	$300,000.00	$300,000
	Gasoline/Diesel Storage and Dispensing - 8,0000 Gallon Capacity (No Secondary Containment)	1	LS	$325,000.00	$325,000
	Sub-Total				*$1,604,400*
	TOTAL BUILDING AND STRUCTURAL				**$9,152,755**
	TOTAL SITE				**$1,883,704**
	TOTAL BUILDING , STRUCTURAL AND SITE				**$11,036,459**
	Contingency - 5%				**$551,823**
	Soft Costs - 20%				**$2,207,292**
	Grand Total				**$13,795,574**

NOTES:

1) Quantities shown are based of the preliminary layout and quantities may change as design progresses.

2) Utility trenching, bedding, and backfilling costs may vary once the design is progressed and all depths of pipes are finalized.

3) **Soft Costs** include Engineering/Design Costs (SWPPP, Geotechnical, Wetland, Survey); Construction Inspection and Testing; SWPPP monitoring; Survey stakeout; Mobilization; General Conditions; Job Trailer; Temporary Utilities; AEC; Phase 1 ESA; Special Inspections (Steel/Electrical); Building and Municipal Permits and Hearing Costs; and Dumpster Mobilization.

4) Estimate does not include: FF&E Costs (Allowance $200,000)

5) Proposed structure could be a single story structure, however, material costs would increase (e.g. Footers, Roofing, Foundations)

6) Cold Storage Hopper Hangars - Exhaust System included to circulate air, however, may not be required; hoppers could be hung outside next to the salt barn; current facility hoppers are loose hanging

7) Natural Gas - 4-5m BTU Load (Depends on Capacity and NYSEG may not charge)

8) Transformer should be located close to the generator

9) Gas/Diesel Storage - 10,000 and 12,000 gallon capacity requires secondary containment; 18 wheeler has 7,500 gallon capacity; 10,000 gallon capacity requires secondary containment per the DEC (aggregate); truck management system included.

10) Sprinkle system estimate is based on that no fire pump will be required

Appendix 1a:
Alternate Site Cost Estimates

ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST

Schematic

PROJECT: DOT Facility Relocation Schematic Estimate
PROJECT NO. 144021
LOCATION: Ithaca Airport Business Park
DATE: May 5, 2016

PREPARED BY: Fisher Associates Staff

Previous Estimate for Dryden Site
Date: June 5, 2015

SITE COSTS

*Includes disposal cost for demo items, **Includes Equipment, Overhead, and Profit

	ITEM-DESCRIPTION	QUANTITY NO. UNITS	QUANTITY UNIT MEAS.	MATERIAL* and LABOR** PER UNIT	MATERIAL* and LABOR** COST	QUANTITY NO. UNITS	QUANTITY UNIT MEAS.	MATERIAL* and LABOR** PER UNIT	MATERIAL* and LABOR** COST	Variance
A.	**Site Preparation**									
1	Strip and Stockpile Topsoil	2,165	cy.	$4.38	$9,483	2,165	cy.	$4.38	$9,483	$0
2	Strip and export topsoil	4,835	cy	$10.50	$50,768	4,835	cy	$10.50	$50,768	$0
3	Erosion Control check dams (at existing ditches)	2	ea.	$425.00	$850	2	ea.	$425.00	$850	$0
4	Erosion Control Silt Fence	1,800	lf	$4.50	$8,100	1,800	lf	$4.50	$8,100	$0
5	Erosion Control Stabilized construction entrance	70	cy	$38.55	$2,699	70	cy	$38.55	$2,699	$0
6	Temporary Chain Link construction fence (New Fence)	500	lf	$8.95	$4,475	500	lf	$8.95	$4,475	$0
7	Temporary Swing Gates (double 24-ft wide) (New Gate)	1	ea	$2,649.00	$2,649	1	ea	$2,649.00	$2,649	$0
8	Sawcuts (at existing roadway crossings)	300	lf	$2.62	$786	300	lf	$2.62	$786	$0
	Sub-Total				***$79,809***				***$79,809***	$0
B.	**Earthwork (General)**									
1	Compact Subgrade (Static roller)	32,730	sy.	$0.36	$11,783	32,730	sy.	$0.36	$11,783	$0
2	Topsoil Placement	2,165	cy.	$7.00	$15,155	2,165	cy.	$7.00	$15,155	$0
3	Cuts and Fills	21,750	cy	$8.50	$184,875	20,250	cy	$8.50	$172,125	$12,750
4	Building Subbase (12-in Type 2 subbase)	2,300	cy	$37.00	$85,100	2,300	cy	$37.00	$85,100	$0
5	Woven Geotextile	6,800	sy.	$1.59	$10,812	6,800	sy.	$1.59	$10,812	$0
	Sub-Total				***$307,725***				***$294,975***	$12,750
C.	**Flexible Paving Improvements**									
1	"1.5 in. Thick Asphalt Wearing Course " (standard duty)	2,040	sy.	$8.01	$16,340	2,040	sy.	$8.01	$16,340	$0
2	"2 in. Thick Asphalt Binder Course " (standard duty)	2,040	sy.	$9.50	$19,380	2,040	sy.	$9.50	$19,380	$0
3	"12-in. Thick Type 2 Sub-Base Course " (standard duty asphalt area)	2,040	sy.	$15.05	$30,702	2,040	sy.	$15.05	$30,702	$0
4	Compaction of subbase (6-in lifts, 4 passes)	680	ecy	$0.75	$510	680	ecy	$0.75	$510	$0
5	"1.5 in. Thick Asphalt Wearing Course " (heavy duty)	3,045	sy.	$8.01	$24,390	3,045	sy.	$8.01	$24,390	$0
6	"2 in. Thick Asphalt Binder Course " (heavy duty)	3,045	sy.	$9.50	$28,928	3,045	sy.	$9.50	$28,928	$0
7	"3 in. Thick Asphalt Base Course " (heavy duty)	3,045	sy.	$18.69	$56,911	3,045	sy.	$18.69	$56,911	$0
8	"12-in. Thick Type 2 Sub-Base Course " (heavy duty asphalt area)	3,045	sy.	$15.05	$45,827	3,045	sy.	$15.05	$45,827	$0
9	Compaction of subbase (6-in lifts, 4 passes)	1,015	ecy	$0.75	$761	1,015	ecy	$0.75	$761	$0
10	"1.5 in. Thick Asphalt Wearing Course " (heavy duty)	10,000	sy.	$8.01	$80,100	New				$80,100
11	"2 in. Thick Asphalt Binder Course " (heavy duty)	10,000	sy.	$9.50	$95,000	New				$95,000
12	"3 in. Thick Asphalt Base Course " (heavy duty)	10,000	sy.	$18.69	$186,900	New				$186,900
13	"12-in. Thick Type 2 Sub-Base Course " (heavy duty gravel area)	15,326	sy.	$15.05	$230,656	15,326	sy.	$15.05	$230,656	$0
14	Woven Geotextile	20,411	sy.	$1.59	$32,453	20,411	sy.	$1.59	$32,453	$0
15	"1.5 in. Thick Asphalt Wearing Course " (at utility crossings)	32	sy.	$8.01	$256	32	sy.	$8.01	$256	$0
16	"2 in. Thick Asphalt Binder Course " (at utility crossings)	32	sy.	$9.50	$304	32	sy.	$9.50	$304	$0
17	"12-in. Thick Type 2 Sub-Base Course " (at utility crossings)	32	sy.	$15.05	$482	32	sy.	$15.05	$482	$0

	Sub-Total				***$849,902***				***$487,902***	$362,000
D.	**Rigid Paving Improvements**									
1	"8-in thick reinforced concrete " (aprons)	1,585	sy.	$40.39	$64,018	1,585	sy.	$40.39	$64,018	$0
2	"6-in. Thick Type 2 Sub-Base Course "	1,585	sy.	$8.20	$12,997	1,585	sy.	$8.20	$12,997	$0
3	"8-in thick reinforced concrete " (fueling station)	290	sy.	$40.39	$11,713	290	sy.	$40.39	$11,713	$0
4	"6-in. Thick Type 2 Sub-Base Course "	290	sy.	$8.20	$2,378	290	sy.	$8.20	$2,378	$0
5	"8-in thick reinforced concrete " (dumpster pad)	8	sy.	$40.39	$323	8	sy.	$40.39	$323	$0
6	"6-in. Thick Type 2 Sub-Base Course "	8	sy.	$8.20	$66	8	sy.	$8.20	$66	$0
7	Woven Geotextile	1,883	sy.	$1.59	$2,994	1,883	sy.	$1.59	$2,994	$0
8	Concrete Loading Ramp	1	ls	$22,500.00	$22,500	1	ls	$22,500.00	$22,500	$0
9	Concrete Sidewalks 4-in thick (including scoring pattern)	4,635	sf	$4.45	$20,626	4,635	sf	$4.45	$20,626	$0
10	Concrete Sidewalk subbase (6-in thick Type 1 stone)	515	sy.	$7.50	$3,863	515	sy.	$7.50	$3,863	$0
11	Concrete Sidewalk Expansion Joints (1/2" x 6")	227	lf	$1.99	$452	227	lf	$1.99	$452	$0
	Sub-Total				***$141,929***				***$141,929***	$0
E.	**Site Amenities**									$0
1	Picnic Tables	1	ls	$1,000.00	$1,000	1	ls	$1,000.00	$1,000	$0
2	Benches and Bike Racks	1	ls	$2,000.00	$2,000	1	ls	$2,000.00	$2,000	$0
3	Facility Sign	1	ls	$11,000.00	$11,000	1	ls	$11,000.00	$11,000	$0
4	"6-in high granite curb	1,214	lf	$33.05	$40,123	1,214	lf	$33.05	$40,123	$0
5	Road pavement striping	1,400	lf	$0.27	$378	1,400	lf	$0.27	$378	$0
6	ADA pavement marking	3	ea	$59.40	$178	3	ea	$59.40	$178	$0
7	ADA signage	3	ea	$280.00	$840	3	ea	$280.00	$840	$0
8	Parking Lot pavement striping	1,320	lf	$8.80	$11,616	1,320	lf	$8.80	$11,616	$0
9	"8-ft high chain link fence w/barbed wire	2,100	lf	$43.25	$90,825	2,100	lf	$43.25	$90,825	$0
10	"26-ft wide sliding gate	3	ea	$7,489.00	$22,467	3	ea	$7,489.00	$22,467	$0
11	Bollards	82	ea	$821.00	$67,322	82	ea	$821.00	$67,322	$0
12	Bollard covers	82	ea	$90.00	$7,380	82	ea	$90.00	$7,380	$0
	Sub-Total				***$255,129***				***$255,129***	$0
F.	**Landscape**									
1	Seeded turf (temporary seed)	115,000	sf	$0.28	$32,200	115,000	sf	$0.28	$32,200	$0
2	Turf and Grasses- new seed lawn (Type 2)	115,000	sf	$0.33	$37,950	115,000	sf	$0.33	$37,950	$0
3	Trees (2.5 - 3" caliper)	8	ea	$600.00	$4,800	8	ea	$600.00	$4,800	$0
4	Trees (2" caliper)	4	ea	$400.00	$1,600	4	ea	$400.00	$1,600	$0
5	Evergreen Trees	20	ea	$340.00	$6,800	20	ea	$340.00	$6,800	$0
6	Shrubs (3 gal.)	50	ea	$61.00	$3,050	50	ea	$61.00	$3,050	$0
7	Shrubs (5 gal.)	15	ea	$67.50	$1,013	15	ea	$67.50	$1,013	$0
	Sub-Total				***$87,413***				***$87,413***	$0
G.	**Stormwater Utilities**									
1	"4-ft dia manhole w/top slab (6-ft deep)	6	ea	$1,800.00	$10,800	6	ea	$1,800.00	$10,800	$0
2	"5-ft dia manhole w/top slab (8-ft deep)	3	ea	$3,850.00	$11,550	3	ea	$3,850.00	$11,550	$0
3	"30-in dia frame and grate/cover	3	ea	$1,006.00	$3,018	3	ea	$1,006.00	$3,018	$0
4	"30-in x 30-in precast concrete inlet structure (6-ft deep)	3	ea	$3,050.00	$9,150	3	ea	$3,050.00	$9,150	$0
5	"Drainage Cleanouts	9	ea	$1,006.00	$9,054	9	ea	$1,006.00	$9,054	$0
6	"12-in dia sicpp	646	lf	$11.51	$7,435	646	lf	$11.51	$7,435	$0
7	"15-in dia. Sicpp	380	lf	$13.45	$5,111	380	lf	$13.45	$5,111	$0
8	"18-in dia. sicpp	400	lf	$20.50	$8,200	400	lf	$20.50	$8,200	$0
9	"24-in dia. sicpp	788	lf	$25.50	$20,094	788	lf	$25.50	$20,094	$0

10	Trenching (5' - 10' deep with trench box)	2,132	cy	$4.95	$10,553	2,132	cy	$4.95	$10,553	$0
11	Backfill (grass surface areas)	490	cy	$6.80	$3,332	490	cy	$6.80	$3,332	$0
12	Backfill (pavement surface areas)	85	cy	$43.50	$3,698	85	cy	$43.50	$3,698	$0
13	Pipe Bedding	1,148	cy	$43.50	$49,938	1,148	cy	$43.50	$49,938	$0
14	Bioretention area - mulch 4" thick	150	cy	$3.25	$488	150	cy	$3.25	$488	$0
15	Bioretention area - filter media 2.5' thick	1,115	cy	$30.50	$34,008	1,115	cy	$30.50	$34,008	$0
16	Bioretention area - drainage stone 1' thick	450	cy	$10.60	$4,770	450	cy	$10.60	$4,770	$0
17	Bioretention are- filter fabric	1,500	sy.	$2.90	$4,350	1,500	sy.	$2.90	$4,350	$0
	Sub-Total				***$195,548***				***$195,548***	$0
H.	**Sanitary Sewer**									
1	"8-in dia. pvc	545	lf	$12.10	$6,595	545	lf	$12.10	$6,595	$0
2	"10-in dia. pvc	250	lf	$18.50	$4,625	250	lf	$18.50	$4,625	$0
3	"4-ft dia manhole w/top slab (6-ft deep)	1	ea	$2,306.00	$2,306	1	ea	$2,306.00	$2,306	$0
4	"4-ft dia manhole w/top slab (8-ft deep)	2	ea	$2,325.00	$4,650	2	ea	$2,325.00	$4,650	$0
5	"600 gpm oil/water separator	1	ea	$72,500.00	$72,500	1	ea	$72,500.00	$72,500	$0
6	"Sanitary cleanouts	4	ea	$1,006.00	$4,024	4	ea	$1,006.00	$4,024	$0
7	"Trenching (6 - 9' deep with trench box)	751	cy	$4.95	$3,717	751	cy	$4.95	$3,717	$0
8	Backfill (grass surface areas)	85	cy	$4.50	$383	85	cy	$4.50	$383	$0
9	Backfill (pavement surface areas)	340	cy	$43.50	$14,790	340	cy	$43.50	$14,790	$0
10	Pipe Bedding	221	cy	$43.50	$9,614	221	cy	$43.50	$9,614	$0
	Sub-Total				***$123,203***				***$123,203***	$0
I.	**Water Service**									
1	"6-in dia. D.I.	120	lf	$40.51	$4,861	120	lf	$40.51	$4,861	$0
2	"10-in dia. D.I.	1,775	lf	$67.50	$119,813	1,775	lf	$67.50	$119,813	$0
3	Trenching (5' - 8' deep with trench box)	1,580	cy	$4.95	$7,821	1,580	cy	$4.95	$7,821	$0
4	Backfill (grass surface areas)	525	cy	$4.50	$2,363	525	cy	$4.50	$2,363	$0
5	Backfill (pavement surface areas)	376	cy	$43.50	$16,356	376	cy	$43.50	$16,356	$0
6	Pipe Bedding	527	cy	$43.50	$22,925	527	cy	$43.50	$22,925	$0
7	Elbow (10" dia, 45 degree bend, D.I.)	6	ea	$1,465.38	$8,792	6	ea	$1,465.38	$8,792	$0
8	Tee (10" dia, D.I.)	7	ea	$1,375.00	$9,625	7	ea	$1,375.00	$9,625	$0
9	Thrust Blocks	18	ea	$139.01	$2,502	18	ea	$139.01	$2,502	$0
10	Valve (6" dia Gate Valve, C.I., 250 psi, mech joint w/ boxes)	6	ea	$890.00	$5,340	6	ea	$890.00	$5,340	$0
11	Valve (10" dia Gate Valve, C.I., 250 psi, mech joint w/ boxes)	3	ea	$1,550.00	$4,650	3	ea	$1,550.00	$4,650	$0
12	Hydrant	5	ea	$2,550.00	$12,750	5	ea	$2,550.00	$12,750	$0
	Sub-Total				***$217,797***				***$217,797***	$0
	TOTAL SITE COSTS				**$2,258,454**				**$1,883,704**	$374,750

BUILDING AND STRUCTURAL		QUANTITY		MATERIAL		QUANTITY		MATERIAL		
		NO. UNITS	UNIT MEAS.	PER UNIT	COST	NO. UNITS	UNIT MEAS.	PER UNIT	COST	
ITEM-DESCRIPTION										
A.	**Office Building (Two-story):** Masonry, Steel Frame, Frost Walls, Slab on Grade, Pre-engineered Metal Panel siding, Drop Ceilings Standard Office Fit-up Space, Energy Efficient Windows and Doors (20% increase in Energy Code), Utilities to 5' out of wall	6,400	Sq. Ft.	$180.00	$1,152,000	12,800	Sq. Ft.	$180.00	$2,304,000	($1,152,000)
	Mechanical - Roof Top Equipment (including A/C), Gas Fired Equip., Roof Ventilation System	6,400	Sq. Ft.	$20.00	$128,000	12,800	Sq. Ft.	$20.00	$256,000	($128,000)
	Electrical - Power, Lighting, Fire Alarm, Telephone and Data	6,400	Sq. Ft.	$19.00	$121,600	12,800	Sq. Ft.	$19.00	$243,200	($121,600)
	Plumbing - Toilet Rooms (Break rooms)	6,400	Sq. Ft.	$10.00	$64,000	12,800	Sq. Ft.	$10.00	$128,000	($64,000)
	Elevator - Two Stop, Holeless, State and ADA Compliant (2 story structure)	0	LS	$70,000.00	$0	1	LS	$70,000.00	$70,000	($70,000)
	Sub-Total				***$1,465,600***				***$3,001,200***	($1,535,600)

B.	**Main Equipment/Storage/Sign Shop:** Metal Panel Exterior, CMU Knee Walls, Insulation (Walls & Ceilings), Concrete Flooring, Overhead Doors, Basic Building Design, Ventilation System	21,500	Sq. Ft.	$52.00	$1,118,000	26,425	Sq. Ft.	$52.00	$1,374,100	($256,100)
	Mezzanines (3 Each)	0	Sq. Ft.	$25.00	$0	4,325	Sq. Ft.	$25.00	$108,125	($108,125)
	Mechanical - Masonry, Steel Frame, Boiler System (In-Floor Radiant)	21,500	Sq. Ft.	$14.00	$301,000	26,425	Sq. Ft.	$14.00	$369,950	($68,950)
	Electrical - Power, Lighting, Fire Alarm	21,500	Sq. Ft.	$8.00	$172,000	26,425	Sq. Ft.	$8.00	$211,400	($39,400)
	Plumbing - Water and Floor Drains	21,500	Sq. Ft.	$6.00	$129,000	26,425	Sq. Ft.	$6.00	$158,550	($29,550)
	Sub-Total				***$1,720,000***				***$2,222,125***	($502,125)
C.	**Mechanics Bay/Wash/Bridge Crew:** Metal Panel Exterior, CMU Knee Walls, Insulation (Walls & Ceilings), Concrete Flooring, Ventilation System	8,350	Sq. Ft.	$52.00	$434,200	13,150	Sq. Ft.	$52.00	$683,800	($249,600)
	Mechanical - In-Floor Radiant and Exhaust, Dispenser Package	8,350	Sq. Ft.	$18.00	$150,300	13,150	Sq. Ft.	$18.00	$236,700	($86,400)
	Electrical - Power, Lighting Fire Alarm, Telephone and Data	8,350	Sq. Ft.	$15.00	$125,250	13,150	Sq. Ft.	$15.00	$197,250	($72,000)
	Plumbing - Water, Floor Drains, Air, Fluid Dispenser	8,350	Sq. Ft.	$16.00	$133,600	13,150	Sq. Ft.	$16.00	$210,400	($76,800)
	Sub-Total				***$843,350***				***$1,328,150***	($484,800)
D.	**Cold Storage Hopper Hangars:** Metal Panel Exterior, CMU Knee Walls	5,560	Sq. Ft.	$48.00	$266,880	5,560	Sq. Ft.	$48.00	$266,880	$0
	Mechanical - Exhaust System	5,560	Sq. Ft.	$6.00	$33,360	5,560	Sq. Ft.	$6.00	$33,360	$0
	Electrical - Power, Lighting Fire Alarm	5,560	Sq. Ft.	$10.00	$55,600	5,560	Sq. Ft.	$10.00	$55,600	$0
	Plumbing - Floor Drains	5,560	Sq. Ft.	$6.00	$33,360	5,560	Sq. Ft.	$6.00	$33,360	$0
	Sub-Total				***$389,200***				***$389,200***	$0
E.	**Salt Barn:** 12' High Concrete Reinforced Walls, Concrete Floors (Heavy Loads), 8" Concrete Reinforced, 12" Stone, and Apron	9,600	Sq. Ft.	$46.00	$441,600	9,600	Sq. Ft.	$46.00	$441,600	$0
	Salt Barn Roofing - Structural Frame, Fabric Roofing	9,600	Sq. Ft.	$12.30	$118,080	9,600	Sq. Ft.	$12.30	$118,080	$0
	Electrical - High Bay Interior Lighting, Telephone and Data	9,600	Sq. Ft.	$5.00	$48,000	9,600	Sq. Ft.	$5.00	$48,000	$0
	Sub-Total				***$607,680***				***$607,680***	$0
F.	**Other Building and Structural Elements**									$0
	Natural Gas Extension - Per NYSEG Requirements, 4-5m BTU Load	1	LS	$10,000.00	$10,000	1	LS	$10,000.00	$10,000	$0
	Site Electrical - Site Lighting, Electrical Feeds, Wall Packs Included, Road to Transformer and Transformer to Building	1	LS	$100,000.00	$100,000	1	LS	$100,000.00	$100,000	$0
	Bridge Crane Double Girder (15 Ton)	1	EA	$165,000.00	$165,000	1	EA	$165,000.00	$165,000	$0
	Lifts - Heavy Duty Four Post, Rotary Mod 30, Pedestal Mounted Controls, Basins Included, ALI Certified	2	EA	$150,000.00	$300,000	2	EA	$150,000.00	$300,000	$0
	Sprinkler System - Wet System with Fire Department Approval, Fire Code Requirement	34,900	Sq. Ft.	$6.00	$209,400	34,900	Sq. Ft.	$6.00	$209,400	$0
	Emergency generator (300 kw) - Serves Whole Building and Site	1	EA	$150,000.00	$150,000	1	EA	$150,000.00	$150,000	$0
	Fuel Tanks/Salt Barn Electrical - Home runs to Main Panel in Building	1	LS	$45,000.00	$45,000	1	LS	$45,000.00	$45,000	$0
	Wash Equipment - Drive-thru Touchless System, Undercarriage Wash, No Reclaim, Water to Oil/Water Separator and then Sanitary	1	EA	$200,000.00	$200,000	1	EA	$300,000.00	$300,000	($100,000)
	Gasoline/Diesel Storage and Dispensing - 8,0000 Gallon Capacity (No Secondary Containment)	1	LS	$325,000.00	$325,000	1	LS	$325,000.00	$325,000	$0
	Sub-Total				***$1,504,400***				***$1,604,400***	($100,000)
	TOTAL BUILDING AND STRUCTURAL				**$6,530,230**				**$9,152,755**	($2,622,525)
	TOTAL SITE				**$2,258,454**				**$1,883,704**	$374,750
	TOTAL BUILDING , STRUCTURAL AND SITE				**$8,788,684**				**$11,036,459**	($2,247,775)
	Contingency - 5%				**$439,434**				**$551,823**	($112,389)
	Soft Costs - 20%				**$1,757,737**				**$2,207,292**	($449,555)
	Grand Total				**$10,985,855**				**$13,795,574**	($2,809,719)

NOTES:

1) Quantities shown are based of the preliminary layout and quantities may change as design progresses.

2) Utility trenching, bedding, and backfilling costs may vary once the design is progressed and all depths of pipes are finalized.

3) **Soft Costs** include Engineering/Design Costs (SWPPP, Geotechnical, Wetland, Survey); Construction Inspection and Testing; SWPPP monitoring; Survey stakeout; Mobilization; General Conditions; Job Trailer; Temporary Utilities; AEC; Phase 1 ESA; Special Inspections (Steel/Electrical); Building and Municipal Permits and Hearing Costs; and Dumpster Mobilization.

4) Estimate does not include: FF&E Costs (Allowance $200,000)

~~**5)** Proposed structure could be a single story structure, however, material costs would increase (e.g. Footers, Roofing, Foundations)~~

6) Cold Storage Hopper Hangars - Exhaust System included to circulate air, however, may not be required; hoppers could be hung outside next to the salt barn; current facility hoppers are loose hanging

7) Natural Gas - 4-5m BTU Load (Depends on Capacity and NYSEG may not charge)

8) Transformer should be located close to the generator

9) Gas/Diesel Storage - 10,000 and 12,000 gallon capacity requires secondary containment; 18 wheeler has 7,500 gallon capacity; 10,000 gallon capacity requires secondary containment per the DEC (aggregate); truck management system included.

10) Sprinkle system estimate is based on that no fire pump will be required

Appendix 2: Environmental Site Assessment (ESA)

Phase I Environmental Site Assessment Report

for the

County of Tompkins, NYS DOT Maintenance Facility Relocation and Redevelopment (PLAN -2014-13-8027)

Prepared for:
County of Tompkins, NYS DOT

Prepared By:
Fisher Associates
135 Calkins Road
Rochester, New York 14523

FISHERASSOCIATES

April 2015

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(Following Text)

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EXECUTIVE SUMMARY

Fisher Associates, P.E., L.S., L.A., D.P.C. ("Fisher Associates") prepared this Phase I Environmental Site Assessment (ESA) for one (1) parcel of land ("subject property") located within the New York State Department of Transportation (NYS DOT) maintenance facility in the City of Ithaca, Tompkins County, New York (Figure 1) at the request of the Tompkins County Planning Department. The purpose of the ESA is to evaluate whether current or historical activities on or near the subject property may have resulted in significant impacts by hazardous substances or petroleum products, known as recognized environmental conditions ("RECs"). This assessment has revealed potential evidence of recognized environmental conditions in connection with the subject property.

This Phase I ESA was accomplished by, and limited to, a reconnaissance of the subject property, a drive-by survey of the site vicinity, and a review of agency databases and other reasonably ascertainable records regarding past and current land use for indications of the manufacture, generation, use, storage and/or disposal of hazardous substances at the site.

According to the Tompkins County Mapping Service, the subject property is within a 7.66 acre parcel owned by New York State Department of Transportation (NYS DOT) (Parcel number of 500700-37-1-1). By review of aerial photographs, the historical use of the subject property was primarily unused land as recent as 1958 when the NYS DOT maintenance facility was constructed. Discussions with the site contact, Mr. Stanley J. Birchenough along with Bill Sheffield, identified that the historical use of the subject property was vacant land prior to construction of the NYS DOT maintenance facility.

It is reported in the Toxics Targeting, Inc. of Ithaca, New York (Toxics Targeting) database report that NYS DOT maintenance facility property has previously had a total of six (6) underground petroleum bulk storage tanks (UST's) located on the property over its history. According to records obtained from Toxics Targeting, six (6) of the UST tanks are removed from service and include two (2) diesel tanks, one (1) gasoline tank, two (2) kerosene tanks, and three (3) other unknown UST's. The New York State Department of Environmental Conservation ("NYSDEC") Region 7 Petroleum Bulk Storage (PBS) indicate that there are nine (9) Aboveground Storage Tanks (AST) tanks reported

to be in service and include two (2) biodiesel tanks, one (1) gasoline/ethanol tank, one (2) waste oil tanks, and four (4) lube oil, hydraulic oil and mineral spirits tanks. At the time of the site reconnaissance, these tanks appeared to be in good condition and no leaks or stained soil associated with them were apparent. The tanks are discussed in Section 5.5.

Fisher Associates has performed a Phase I Environmental Site Assessment of the property described above in conformance with the scope and limitations of ASTM Practice E 1527-13. Any exceptions to, or deletions from, this practice are described in Section 1.4, Limiting Conditions. This assessment has revealed evidence of recognized environmental conditions in connection with the property.

There has been a known petroleum or hazardous materials release due to a tank test failure which potentially caused minimal potential impact. This opened New York State Department of Environmental Conservation (NYSDEC) spill number 92-12528. These UST's were removed for the property and a letter from the NYSDEC dated August 5, 2004 identified the department has determined that the location of the cleanup has completed the necessary cleanup and removal actions, and no further remedial activities are necessary. There were four monitoring wells surrounding the former UST location which have been abandoned in place. Fisher Associates identified the following other environmental concerns associated with the NYS DOT maintenance facility located within the property and which surrounds the subject property:

- The Toxics Targeting database indicated that six (6) existing or former bulk petroleum storage tanks were located on the NYS DOT maintenance facility. Field observations and discussions with NYS DOT staff verified that there are nine (9) active petroleum tanks currently on the NYS DOT maintenance facility. In addition there are three tanks that support salt brine tanks, and one magnesium chloride 30% and have on hand 2500 -3000 gallons for road deicing activities.

- The former easterly Old Cayuga Inlet that runs along 3rd Street Extension. This former Old Cayuga inlet was filled in with unknown debris and is suspect due to environmental and structural concerns.

- The NYS DOT maintenance facility had a septic system that was located north from the existing building with leach line located in the northeastern most vegetative area. The former septic system was utilized up into a few years ago, was filled with sand and left in place. The NYS DOT facility is now connected to the municipal wastewater collection through the City of Ithaca municipal sanitary sewer system. This septic system and leach lines could be potential areas of environmental concern.

- The onsite reconnaissance exhibited potential concerns leading to the existing floor drains that approximately two years ago, were connected to the new oil water separator which discharges to the existing sanitary sewer system. These existing floor drains had an undisclosed discharge point prior to the connection to the new system.

- At the time of the site reconnaissance, all tanks appeared to be in good condition and no leaks or stained soil associated with them were apparent. The storage area at the used oil drum area exhibited noticeable staining on the asphalt surface. During the site reconnaissance, the site representative indicated that the tanks were registered with the Town of Ithaca Fire Department. Requests for tank information from the Fire Department were made but at the time of this report no information had been received. According to the site contact the tanks are also registered with the NYSDEC.

- The formerly known Andree Petroleum facility has several AST tanks with secondary containment systems. It is presently known as Mirabito Energy. The AST farm has several 15,000 gallon AST tanks with known spills and releases. This is directly hydraulically upgradient which could potentially impact the NYS DOT maintenance facility.

1.0 INTRODUCTION

Fisher Associates, P.E., L.S., L.A., D.P.C. ("Fisher Associates") prepared this Phase I Environmental Site Assessment (ESA) for one (1) parcel of land ("subject property") located within the New York State Department of Transportation (NYS DOT) maintenance facility in the City of Ithaca, Tompkins County, New York (Figure 1) at the request of the Tompkins County Planning Department. The subject property is an approximately 7.66 acre property. A site location map for the subject property is presented in Figure 1.

1.1 Purpose

The purpose of this ESA is to provide a professional opinion on the potential current presence of recognized environmental conditions ("RECs") at the subject property, including potential environmental impacts from surrounding properties in accordance with ASTM E 1527-13 "Standard Practice for Environmental Site Assessments: Phase I Site Assessment Process" and the United States Environmental Protection Agency's (USEPA) standards set forth in Title 40 Code of Federal Regulations (CFR) Part 312 for "All Appropriate Inquiries" ("AAI").

By definition under ASTM E 1527-13, the term "recognized environmental condition" is defined as "the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include *de minimis* conditions that generally do not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies." (ASTM, 2013)

1.2 Scope of Services

The scope of services for this Phase I ESA that was authorized included the following tasks:

- Review of environmental studies/data readily available for the subject property;

- Site reconnaissance, which included a field walkover of the site (photographs are provided in Appendix A), interview with site contacts, and review of completed AAI questionnaires;

- Research subject property history by (a) reviewing aerial photographs covering the subject property and adjoining property; (b) reviewing topographic maps; and (c) researching the availability of city directories of the subject property and vicinity. It should be noted that historical Fire Insurance Maps were available for the subject property. The historical documentation is provided in Appendix B;

- Review of local, state, and federal databases provided by Toxics Targeting, Inc. ("Toxics Targeting"), of Ithaca, New York, of known or potential hazardous waste sites or landfills, and sites currently under investigation for environmental violations. The lists and search radii results are provided in Appendix C;

- Tax records review through the Tomkins County website and other sources (Appendix D);

- Contact pertinent local regulatory agencies for information about the subject property usage and history. The Freedom of Information Act (FOIA) correspondence is provided in Appendix E; and,

- Evaluation of the potential environmental impact of adjacent properties on the subject property.

The Phase I ESA will remain valid for 180 days; however, an update can be performed within one year of the date of the issued report. If an environmental inquiry is more than one year old from the date of the final report, all components must be redone; an update will not be valid.

1.3 User Reliance

This report has been prepared for use solely by Tompkins County and shall not be relied upon by or transferred to any other party, or used for any other purpose, without the express written authorization of Fisher Associates.

1.4 Limiting Conditions

Discussions of data gaps, if any, including sources reviewed, the significance of each data gap, and an opinion if the data gap inhibits the environmental professional's ability to reach an opinion about contamination at the property are incorporated into the appropriate sections of this report.

Opinions and recommendations presented herein apply to the site conditions existing at the time of our investigation, and cannot necessarily apply to site changes of which Fisher Associates is not aware and has not had the opportunity to evaluate. Changes in the conditions of this property may occur with time due to natural processes or the works of man on the subject site or adjacent properties. Changes in applicable standards may also occur as a result of legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated, wholly or in part, by changes beyond our control. Opinions and judgments expressed herein are based on Fisher Associates' understanding and interpretation of current regulatory standards, and should not be construed as legal opinions.

Fisher Associates' ability to complete the ESA's Scope of Services was limited to the degree of accuracy of information provided by the Toxics Targeting database report, readily available historical information, the site contacts, and information obtained from local/state agencies.

2.0 SITE DESCRIPTION

2.1 Location and Description of Property

The approximately 7.66-acre subject property is located at 3rd Street in the City of Ithaca, Tomkins County, New York. According to the Tompkins County Mapping Service (Tompkins County, 2015), the maintenance facility property has been owned by Tompkins County as parcel number of 500700-37-1-1. The subject property is comprised of two (2) main buildings on the property which is surrounded by the Cayuga Inlet to the west, 3rd Street Extension to the east, the Farmers market to the North, and the Cayuga Inlet/Barge Canal Terminal to the south.

2.2 Site and Vicinity General Characteristics

The site and vicinity is characterized by commercial use along 3rd Street, 3rd Street Extension, and Carpenter Circle. The former Old Cayuga Inlet is located between the property's east fence line and 3rd Street Extension. Along 3rd Street the existing waste water treatment plant and farmers market are to the North with structural building. Paved parking areas are located along the periphery of the maintenance facility with some gravel areas that stage construction materials and used asphalt cuttings near the buildings. A covered salt building along with the brine and magnesium chloride tanks is present.

2.3 Topography

The subject property is located in the City of Ithaca, Tompkins County, New York. Topographic map coverage is provided by the U. S. Geological Survey (USGS), 7.5 minute "Ithaca West" quadrangle map (USGS, 1969). The subject property lies at an approximate elevation of 387 feet above mean sea level (amsl). The surface topography is downgradient to the north and northwest.

According to the FEMA Flood Map Service Center (FEMA, 2014) Panel 360850-001 B, the subject property is located in Zone C and determined to be outside the 100-year and 500-year floodplains and only the portion of the property that is remotely adjacent to the nearest floodplain to

the southeast is shown. No U.S. Fish and Wildlife Service ("USFWS") National Wetland Inventory (NWI) or New York State Department of Environmental Conservation ("NYSDEC") wetlands are mapped within 0.25 miles of the subject property (USFWS, 2014; NYSDEC, 2014).

2.4 Regional Geology/Hydrogeology

The study area is situated in the Genesee Group, Upper Devonian of New York State (City of Ithaca). Tompkins County was buried by glacial ice during the Wisconsin glaciation, which ended approximately 13,000 years ago. During the glaciation and subsequent retreats, glacial ice eroded soil material and bedrock material, which were ultimately redeposited as a mixture of unconsolidated sediments.

Genesee Formation extended from southwestern NY and western PA into eastern OH and northern WV (de Witt and others, 1993). Beneath the overburden deposits, the bedrock consists of the gray shale sequence above the Geneseo Shale Member of the Genesee Formation comprises the Penn Yan Shale Member, the Genundewa Limestone Member, and the West River Shale Member. The Penn Yan, at the base of the sequence, contains the Middle and Upper Devonian boundary. Based on the surface topography, groundwater flow is likely to the northwest of the subject property towards Cayuga Inlet and Cayuga Lake.

2.5 Adjoining Properties

The subject property is located in a mixed suburban residential/commercial area in the City of Ithaca. Land use immediately adjoining the subject property includes the following:

- North – farmers market and wastewater treatment plant;
- East – Mirabito Energy and the former Old Cayuga Inlet;
- South – Cornell University and Ithaca College Boat House;
- West – Cayuga Inlet and the newly installed waterfront trail extension.

3.0 USER PROVIDED INFORMATION AND INTERVIEWS

As part of AAI, additional inquiries are required to be conducted by the purchaser/owner of the subject property. These inquiries include:

- Identification of environmental liens against the subject property;
- Specialized knowledge or experience regarding the subject property;
- Relationship of the project cost to the remediation cost if the subject property was not contaminated;
- Commonly known or reasonably ascertainable information regarding the subject property; and,
- Degree of obviousness of the presence or likely presence of contamination at the subject property.

The user is responsible for obtaining information to address the items listed above to meet AAI requirements. At the time of this report, Mr. Stanley J. Birchenough completed the questionnaire to the extent practicable given his knowledge of the property and its history. A copy of the questionnaire is included in Appendix D.

3.1 Title Records

Title abstract for the subject property was not reviewed; however, the records available through the City of Ithaca were reviewed and indicated:

- property was originally owned by NYS DOT since 1958

3.2 Environmental Liens or Activity and Use Limitations

According to Fisher Associates' research, the subject property is not the subject of environmental liens.

4.0 SITE HISTORY

The history of land use on or near the subject property was obtained primarily from historical aerial photos, historical topographic maps, city directory search, information obtained from the Tompkins County Internet Mapping website, Historic Sanborn Fire Insurance Maps and the interview with site representative, Mr. Stanley J. Birchenough.

4.1 Tax and Property Information

Fisher Associates obtained tax and property information from the Tompkins County Mapping website (Tompkins County, 2015). The approximately 7.66-acre NYS DOT maintenance facility, which includes the subject property, has been owned by NYS DOT maintenance facility since 1958 and has a parcel number of 500700-37-1-1. A copy of the property information from the Tompkins County Internet Mapping website and a tax map of the subject property and surrounding area are provided in Appendix D.

4.2 Historical Aerial Photographs

As part of this ESA, Fisher Associates' performed a review of historical aerial photos of the subject property, provided by Google Earth (1995, 2006, 2007, 2008, 2009, 2011, and 2013). Copies of the Google Earth aerial photos are provided in Appendix B. Observations from these photos are summarized in the following table.

Historic Aerial Photography Observations	
Date	**Description**
1866	**Subject property:** all acreage appears to be agricultural land with a boat launch in the northwest portion of the parcel. **Surrounding Properties:** all acreage appears to be open land with railroad tracks development east.
1866-2	**Subject property:** all acreage appears to be agricultural land with a boat launch in the northwest portion of the parcel. **Surrounding Properties:** all acreage appears to be open land with railroad tracks development east.
1895	**Subject property:** all acreage appears to be commercial land with a boat launch in the northwest portion of the parcel. **Surrounding Properties:** all acreage appears to be open land with railroad tracks development east.
1995	**Subject property**: commercial buildings NYS DOT on property with to Salt structures **Surrounding Properties**: increased farm market, wastewater treatment facility present to the north with commercial/professional development to the south and east.
2006	**Subject property**: no changes observed from 1995 aerial except for south most Salt structure was removed. **Surrounding Properties**: no changes observed commercial development from 1995
2007	**Subject property**: no changes from the 2006 aerial. **Surrounding Properties**: no changes observed since 2006 aerial photograph
2008	**Subject property**: no changes from the 2007 aerial. **Surrounding Properties**: no changes observed since the 2007 aerial photograph.
2009	**Subject property**: no changes observed from 2008 aerial. **Surrounding Properties**: no changes observed since the 2008 aerial photograph.
2011	**Subject property**: addition of small storage areas observed... **Surrounding Properties**: no changes observed since the 2009 aerial photograph
2013	**Subject property**: no changes observed from 2011 aerial. **Surrounding Properties**: no changes observed since the 2011 aerial photograph

4.3 Historical Maps

Historical maps for 1866 and 1895 were available for this Phase I ESA. These maps show minimal activity with the existing parcel except for the railroad tracks.

4.4 Sanborn® Maps

Sanborn® Map Observations	
Date	**Description**
1904	Sanborn map shows the land as natural and untouched
1910	Sanborn maps shows the land as natural and untouched
1929	Sanborn maps shows the land as natural and untouched
1961	The historic map shows the parcel has the two existing buildings for the New York State Department of Public Work along with the former salt building to the south. During this period the Old Cayuga Inlet has been filled in.
1971	The historic map shows the parcel has the two existing buildings for the New York State Department of Public Work along with the former salt building to the south.

4.5 City Directory Abstracts

City directory abstracts were not available for review for this Phase I ESA.

5.0 SITE RECONNAISSANCE

This section will describe the site reconnaissance methodology, limiting conditions, and environmental conditions associated with the site.

5.1 Methodology and Limiting Conditions

Mr. James A. Moore of Fisher Associates conducted the site reconnaissance on April 8, 2015, to identify potential RECs associated with the subject property and interview Mr. Stanley J. Birchenough, the site representative. Photographs taken during the site reconnaissance are provided in Appendix A.

5.2 Wetlands

As discussed previously, there are no NWI or NYSDEC wetlands mapped within the subject property.

5.3 Hazardous Materials

Hazardous materials that were readily observed during the site reconnaissance were new oils and used waste oil in the outside storage area and some pesticide weed killer at the building site. Therefore, the only place for the use or storage of these materials is within the existing buildings. Fisher Associates discussed the use and storage of those materials with Mr. Stanley J. Birchenough during the site reconnaissance and learned that hazardous materials, if any, are contained within the existing buildings.

5.4 Hazardous Wastes

No hazardous wastes were observed to be present at the subject property at the time of the site reconnaissance.

5.5 Underground/Aboveground Storage Tanks

No evidence of underground storage tanks (UST) was observed to be present at the subject property at the time of the site reconnaissance. However, there are six (6) ASTs located on the NYS DOT maintenance facility grounds. At the time of the site reconnaissance, these tanks appeared to be in good condition and no leaks or stained soil associated with them were apparent. Additionally one portable skid AST tanks was observed on the property, outside. During the site visit, the site representative indicated that the tanks were registered with the NYS DOT. Requests for tank information from the Fire Department were made, but at the time of this report no information had been received. The site contact also noted that the tanks are registered with the NYSDEC.

5.6 Drums and Containers

There were several new and used drums and intermediate bulk containers observed during the site reconnaissance. These new drums containing petroleum and antifreeze were located inside the existing buildings for containment. The used drums and intermediate bulk containers were placed outside behind the original building. Noticeable amounts of staining on the asphalt surface were observed during the site reconnaissance.

5.7 Air Emissions

No air emissions were observed to be present at the subject property at the time of the site reconnaissance.

5.8 PCB-Containing Equipment

Polychlorinated biphenyls (PCBs) are typically associated with fluid-cooled (wet) electrical transformers, large capacitors, wet switchgear, fluorescent light ballasts, caulking materials, and hydraulic oils manufactured between the early 1940s and the late 1970s. Occasionally, PCBs are associated with piston elevators using hydraulic oil. The use of PCBs in items manufactured in the

United States was largely banned in 1979. PCB-containing equipment or materials were not observed on the subject property during the site reconnaissance.

5.9 Solid Waste

Solid waste dumpsters were not observed during the site reconnaissance.

5.10 Drains and Sumps

Floor drains were observed during the site reconnaissance. These drains were recently connected to a new oil water separator which discharges into the sanitary system. Historically, the discharge point is unknown.

5.11 Wastewater

The NYS DOT maintenance facility formerly operated a septic system that was located north form the existing building with leach line located in the north most grassy area. The NYS DOT facility is now hooked into the municipal wastewater collection through the City of Ithaca municipal sanitary sewer system.

5.12 Groundwater Wells

No portable wells were located within or adjacent to the subject property. There are monitoring wells that have been abandoned in the vicinity of the former USTs.

5.13 Pits, Ponds, and Lagoons

No pits or lagoons were observed on the subject property at the time of the site reconnaissance.

5.14 Stormwater

Stormwater from the subject property has two catch basin that flow into the storm drains located between the existing building and eventually into the Cayuga Inlet. The remaining stormwater will sheet flow to the local water bodies.

5.15 Potable Water Supply

According to the site representative, potable water is provided by the Tompkins County Water Authority.

5.16 Asbestos

The only identified asbestos containing materials (ACMs) that Mr. Stanley J. Birchenough noted was a tile floor under the second floor break room. All windows have been updated and the insulation around the boiler system piping has been apparently removed and new fiberglass insulation installed at the facility.

5.17 Water Intrusion and Mold Growth

No evidence of water intrusion or mold growth was observed at the subject property during the site reconnaissance.

5.18 Other Physical Evidence of Contamination

No other physical evidence of contamination was observed on the subject property during the site reconnaissance.

6.0 FEDERAL AND STATE DATABASE REVIEWS AND AGENCY CONTACTS

Fisher Associates reviewed information gathered from environmental databases through Toxics Targeting to evaluate whether activities on or near the subject property have the potential to create a REC on the subject property. Toxics Targeting compiles up-to-date information from pertinent federal, state and local agencies, including the United States Environmental Protection Agency ("USEPA") and the NYSDEC. The Toxics Targeting database search was completed in accordance with ASTM-specified radii and is provided in Appendix C. The database report and the Freedom of Information Act (FOIA) requests are summarized in the following sections.

6.1 Environmental Database Review

Type of Database	Description of Database and Effective Date Federal/State Databases	ASTM Radius	Sites Within Radius
NPL	National Priorities List- list of uncontrolled or abandoned hazardous waste sites identified for priority cleanup under the Superfund program.	1 mile	0
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) database – identifies hazardous waste sites that require investigation and possible remedial action.	0.5 mile	0
CERCLIS-NFRAP	CERCLIS hazardous waste sites designated "No Further Remedial Action Planned" (NFRAP).	0.5 mile	2
ERNS	USEPA's Emergency Response Notification System (ERNS) – list of reported spill records of oil and hazardous substances.	Subject property only	0
CORRACTS	USEPA's Corrective Action Report (CORRACTS) – identifies hazardous waste handlers with RCRA corrective action activity.	1 mile	0
RCRA TSDs	Resource Conservation & Recovery Act (RCRA) Information System- list of sites that transport, store, and dispose of (TSD) hazardous waste.	0.25 mile	4
RCRA LQG	Resource Conservation & Recovery Act (RCRA) Information System- list of large quantity generators (LQG) sites that generate hazardous waste more than 1000 kg per month	0.25 mile	2

Type of Database	Description of Database and Effective Date Federal/State Databases	ASTM Radius	Sites Within Radius
RCRA SQG	Resource Conservation & Recovery Act (RCRA) Information System - list of small quantity generators (SQG) sites that generate hazardous waste between 100 kg and 1000 kg per month.	0.25 mile	2
RCRA CESQG	Resource Conservation & Recovery Act (RCRA) Information System- Conditionally exempt small quantity generators.	0.25 mile	0
State Databases			
LTANKS	State list of all reported leaking storage tank incidents (LTANKS) from 04/01/86 through most recent update.	0.5 mile	4
HIST LTANKS	State list of historical leaking tank incidents.	0.5 mile	10
NY Spills	State list of all reported spill incidents from 04/01/86 through most recent update.	0.5 mile	10
AST	State list of registered aboveground storage tanks	0.25 mile	1
UST	State list of registered underground storage tanks	0.25 mile	2
CBS UST	State list of Chemical Bulk Storage (CBS) USTs	0.25 mile	0
CBS AST	State list of CBS ASTs	0.25 mile	7
MOSF UST	State List of Major Oil Storage Facilities with USTs	0.25 mile	0
MOSF AST	State List of Major Oil Storage Facilities with ASTs	0.25 mile	0
NYS Brownfields	A list of all registered dry cleaning facilities	0.50 mile	2
MANIFEST	State list that tracks hazardous waste from the generator through transporters to a TSD facility	0.25 mile	0
NY VCP	State Voluntary Cleanup Agreement sites	0.50 mile	2
SHWS	List of state hazardous waste sites (SHWS), state equivalent to CERCLIS	1 mile	2
SWF/LF	State list of operating solid waste facilities/landfill sites (SWF/LF)	0.5 mile	0
HSWDS	State list of known or suspected hazardous substance waste disposal sites (HSWDS)	0.5 mile	2

6.1.1 Subject Property

The NYS DOT maintenance facility was identified in the Tank Test Failure, Closed Status Spill, and PBS storage databases. The NYS DOT maintenance facility has had reports of a spill at the property that is documented by the NYSDEC. These reports indicate that: 1) there was a leaking tank

that was removed and the immediate contamination in the vicinity of the tank was remediated and no further work was required.

6.1.2 Adjacent and Off Site Properties

The adjacent sites listed in the Toxics Targeting report (Appendix C) could potentially present an REC to the subject property due to close distance from the subject property and being upgradient of the site.

Fisher Associates reviewed the Toxics Targeting-listed sites that are unmapped due to insufficient geocode information. The unmapped sites are summarized in the Toxics Targeting database report provided in Appendix C. Based on Fisher Associates' knowledge of the area, none of these sites are within the relevant ASTM specified radii for the subject property.

6.2 State/Local Regulatory Agency Review

Fisher Associates sent a FOIA request letter for the subject property to the NYSDEC Region 7 Office on April 14, 2015. Fisher did not acquire the FOIA request letter and information search as of the date of this report.

7.0 CONCLUSIONS

Fisher Associates prepared this Phase I ESA for a 7.66 acre portion of subject property in the City of Ithaca, Tomkins County, New York at the request of the County of Tomkins in conformance with the scope and limitations of ASTM Practice E 1527-13. Any exceptions to, or deletions from, this practice are described in Section 1.4, Limiting Conditions.

This assessment has revealed evidence of recognized environmental conditions in connection with the subject property.

Fisher identified the following REC's and other environmental concerns associated with the subject property:

- The Toxics Targeting database indicated that six (6) existing or former bulk petroleum storage tanks were located on the NYS DOT maintenance facility. Field observations and discussions with NYS DOT staff verified that there are nine (9) active petroleum tanks currently on the NYS DOT maintenance facility. In addition there are three tanks that support salt brine tanks, and one magnesium chloride 30% and have on hand 2500 -3000 gallons for road deicing activities.

- The former easterly Old Cayuga Inlet that runs along 3rd Street Extension. This former Old Cayuga Inlet was filled in with unknown debris and is suspect due to environmental and structural concerns.

- The NYS DOT maintenance facility formerly operated a septic system that is located north form the existing building with leach line located in the northeastern most vegetative area. The former septic system was utilized up into a few years ago, was filled with sand and left in place. The NYS DOT facility is now connected to the municipal wastewater collection through the City of Ithaca municipal sanitary sewer system. This septic system and leach lines could be potential areas of environmental concern.

- The onsite reconnaissance exhibited potential concerns leading to the existing floor drains that approximately two years ago were connected to the new oil water separator, and which discharges to the existing sanitary sewer system. These existing floor drains historically have an undisclosed discharge point prior to the connection to the new system.

- At the time of the site reconnaissance, all tanks appeared to be in good condition and no leaks or stained soil associated with them were apparent. The storage area at the used oil drum area exhibited noticeable staining on the asphalt surface. During the site reconnaissance, the site representative indicated that the tanks were registered with the Town of Ithaca Fire Department. Requests for tank information from the Fire Department were made but at the time of this report no information had been received. According to the site contact the tanks are also registered with the NYSDEC.

- The formerly know Andree Petroleum facility, has several AST with a secondary containment system. It is presently known as Mirabito Energy. The AST farm has several 15,000 gallon AST tanks with known spills and releases. This is directly hydraulically upgradient which could potentially impact the NYS DOT maintenance facility.

8.0 DISCLAIMER

Fisher Associates' conclusions in this report are based on conditions that existed on the property in April 2015. Past and present conditions that could not be observed were established on the basis of available documents. Fisher Associates cannot attest to the completeness or accuracy of these documents.

This report was prepared by Fisher Associates expressly and exclusively for use by the Tompkins County. Except where specifically stated to the contrary, the information contained herein was provided to Fisher Associates by others and has not been verified independently or otherwise examined to determine its accuracy, completeness, or feasibility. In addition, Fisher Associates may have had to rely upon the assumptions, especially as to future conditions and events. Accordingly, neither Fisher Associates nor any person acting on its behalf (a) makes any warranty or representation, whether expressed or implied, concerning the usefulness of the information contained in this report, or (b) assumes liabilities with respect to the use of or for damages resulting from the use of any information contained in this Phase I ESA report.

No one other than Tompkins County is authorized to rely on this report for any purpose, except to the extent that such reliance is specifically authorized in writing by Fisher Associates. Any person who intends to take action, which is in any way related to or affected by the information contained herein, should independently verify all such information. The report speaks only as of the date issued. Fisher Associates has no responsibility for updating the information herein, and therefore, it should not be assumed that any information contained in this ESA continues to be accurate subsequent to 180 days from the date of this report.

It would be extremely expensive, and perhaps not possible, to conduct an investigation that would ensure the detection of environmental impacts at the subject site, which now are, or in the future might be, considered hazardous. This investigation does not guarantee that Fisher Associates discovered all the environmental impacts at the subject property. Similarly, a property which, in fact, is unaffected by environmental impacts at the time of the assessment may later, due to natural phenomena or other intervention, become contaminated.

Except where stated to be the contrary, this ESA has been prepared solely on the basis of readily available visual observation. Except where stated to be the contrary, no demolition or removal by Fisher Associates has been accomplished to reveal hidden conditions. Except where stated, no testing of soil, groundwater, equipment, or systems has been performed to verify current conditions or to predict future conditions.

Future regulatory modifications, agency interpretation, or policy changes may affect the compliance status of the property.

A title search, air quality survey, radon evaluation and asbestos survey were not requested as part of this project. These topics require specialized expertise. A specialty survey can be performed upon request.

9.0 REFERENCES

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10.0 SIGNATURE PAGE

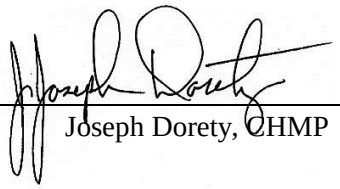
Author: Mr. Moore has an Associates' Degree in Groundwater Resources Management. Mr. Moore has more than 27 years experience planning and performing numerous Phase I/Phase II/Phase III Environmental Site Assessments/Field Investigations/Remedial Designs for various properties including warehouses, distribution centers, factories, retail stores, brownfield sites, gas stations, office and industrial parks, MGP sites, landfills, and residential homes throughout New York State. Field work has included test pit excavation; soil gas surveys; GPR surveys; soil boring investigations; soil and bedrock monitoring well installation; UST removal, corrective action and closure reporting; industrial hygiene monitoring; soil, air, sediment, surface water, and groundwater sampling; QA/QC, environmental inspection and health and safety oversight; preparation of HASPs, Phase I/II/III reports; feasibility determination and costing; and installation and oversight of remedial measures.

Senior Reviewer: Mr. Dorety has an Associates' Degree in Forestry/Recreation Lands Management, and is a Certified Hazardous Materials Practitioner (CHMP). Mr. Moore has more than 25 years' experience planning and performing numerous Phase I/Phase II/Phase III Environmental Site Assessments/Field Investigations/Remedial Designs for various properties including warehouses, distribution centers, factories, retail stores, brownfield sites, gas stations, office and industrial parks, MGP sites, landfills, and residential homes throughout New York State. Field work has included test pit excavation; soil gas surveys; GPR surveys; soil boring investigations; soil and bedrock monitoring well installation; UST removal, corrective action and closure reporting; industrial hygiene monitoring; soil, air, sediment, surface water, and groundwater sampling; QA/QC, environmental inspection and health and safety oversight; preparation of HASPs, Phase I/II/III reports; feasibility determination and costing; and installation and oversight of remedial measures

We declare that, to the best of our professional knowledge and belief, we meet the definition of Environmental Professional as defined in §312.10 of 40 CFR 312.

Author's Signature: _____ 04/14/2015

James A. Moore — Date



Sr. Reviewer's Signature: _____ 04/14/15

Joseph Dorety, CHMP — Date

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Appendix 3: Geotechnical Investigation

EMPIRE GEO SERVICES, INC.
A SUBSIDIARY OF SJB SERVICES, INC.

April 23, 2015

Fisher Associates
135 Calkins Road
Rochester, New York 14623

Attn: Daniel P. Yanosh Jr., P.E.

Re: Preliminary Geotechnical Evaluation
Existing NYSDOT Maintenance Facility
3rd Street
Ithaca, New York
Empire Geo Project No. BE-15-049

Dear Mr. Yanosh:

This report presents the results of a subsurface exploration program and preliminary geotechnical engineering evaluation completed by Empire Geo-Services, Inc. (Empire) for the planned commercial redevelopment of the existing NYSDOT maintenance facility site located on 3rd Street in the city of Ithaca, Tompkins County, New York. The approximate location of the project site is shown on Figure 1.

Fisher Associates retained Empire to complete this work, which was done in general accordance with our proposal number PBE-14-247, last revised February 27, 2015. SJB Services, Inc. (SJB), our affiliated drilling and materials testing company, completed the subsurface exploration program which included the advancement of conventional test borings at the project site.

On this basis, Empire prepared this report, which summarizes the subsurface conditions revealed by the test borings and presents general/preliminary geotechnical considerations and recommendations to assist in planning for design and construction of future foundations, floor slabs, pavements and associated earthwork at the site.

1.0 SITE AND PROJECT DESCRIPTION

The project site is approximately eight acres in size and is located on the Cayuga Inlet waterfront. The site is currently occupied with three principal structures: a main building with office and garage space, a utilitarian type outbuilding, and a

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salt storage dome. Adjoining properties include the Ithaca Farmers Market to the north and the Cornell University Rowing Center to the south. The main building is a single story structure built in 1958 which is reportedly supported on large (9' x 9') spread footings; no significant structural issues were reported in connection with the building and none were observed. The existing DOT facility is to be relocated to a site in the village of Dryden.

As we understand it, no specific redevelopment plan has yet been established, but it is envisioned the existing buildings/structures will be removed and that plans might ultimately include the construction of a new three to five-story wood-frame building somewhere on the site. The building would likely have CMU or cast-in-place foundation walls. It would also likely feature an elevator, and a basement may or may not be included. Proposed grades would likely be kept similar to existing grades so as to minimize earthwork, although this is uncertain at this time.

Topography in the site locale consists of lowlands at the south end of Cayuga Lake, and while it is relatively flat in the project area, prominent hillsides rise to the west and east (at distances of about 1,500 feet and 4,000 feet, respectively). USGS data indicates the water surface elevation in the Cayuga Inlet is typically in the range of 379 to 383 feet above NGVD 1929.

Representatives of the Ithaca Building Department indicate there has been a number of foundation related issues with buildings in the site locale with similar soil conditions. In the commercial corridor about a mile south of the site, the Cellular One building at 725 South Meadow Street, which was built in the late 1990s, exhibited chronic foundation problems and was razed within the last year or two. Additionally, the Bed Bath and Beyond store was closed temporarily to allow foundation repairs, and the Lowe's store parking lot has exhibited excessive settlement. A newer Panera Bread building is reportedly supported on a deep foundation system, as is the Lowe's building and some others. Timber piles, helical piles and pipe piles are reportedly among the deep foundation systems in use in the area, and pile supported structures are evidently performing satisfactorily. A newer building at the Cornell rowing center (immediately south of the subject site) was recently constructed on a mat foundation.

2.0 METHOD OF INVESTIGATION

Test Borings

Subsurface conditions at the site were investigated through the completion of three test borings (designated as B-1 through B-3) at the approximate locations depicted on the subsurface investigation plan (Figure 2). The target borehole locations were selected by Fisher Associates, and were staked/marked in the field using taped measurements from existing site features; the actual locations were established within the limitations of equipment access and underground/overhead utilities. The ground surface elevation at each borehole was determined using differential leveling and referenced to a temporary benchmark (floor of garage area, main building, with an elevation of 394.0 feet as indicated on a DOT record drawing provided

for our use).

The test borings were completed between March 18 and 20, 2015 using a Central Mine Equipment (CME) model 75 truck-mounted drill rig equipped with hollow stem augers. As the augers were advanced, the soils were sampled in accordance with ASTM D1586 – Standard Method for Penetration Test and Split-Barrel Sampling of Soils. Split spoon samples and standard penetration tests (SPTs) were taken continuously from the ground surface to a nominal depth of 12 feet, and at standard five foot intervals thereafter to the borehole termination depths. The boreholes were thus advanced to total depths of 25.0 to 97.0 feet below existing grade.

Representative portions of the recovered soil samples were transported to Empire's office, whereupon a geotechnical engineer prepared individual test boring logs based on visual classification of the recovered soil samples and review of the driller's field notes. The soil samples were described based on a visual/manual estimation of grain size distribution, and characteristics such as color, texture, moisture content, relative density, consistency, etc. The subsurface logs are presented in Attachment A, along with general information and a key of terms and symbols used in their preparation.

Observation Well

A temporary groundwater observation well was installed in test boring B-2 upon its completion to allow periodic measurement of static water level at that location. The well was set at a depth of 23.0 feet, and consists of 2-inch diameter PVC with machine-slotted screen and riser pipe, along with a sand filter, bentonite seal and protective flush-mount cover. The well is identified as MW B-2, and a well completion detail sheet is included with the subsurface log for borehole B-2.

Laboratory Testing

Selected recovered samples from the test borings were tested in our soils laboratory as part of the subsurface investigation, to confirm the visual classifications and to provide index properties for our use in the geotechnical evaluation. This testing was performed in general accordance with the following standard methods:

- Moisture content by ASTM D2216 – Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
- Grain size by ASTM C136 – Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
- Particle size by ASTM D422 – Standard Test Method for Particle-Size Analysis of Soils
- Organic content by ASTM D2974 – Standard Test Methods for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils
- Atterberg limits by ASTM D4318 – Standard Test Method for Liquid Limit, Plastic Limit and Plasticity Index of Soils

Individual samples were tested as summarized in the following table. Laboratory test results are presented in Attachment B.

Table 1 - Summary of Laboratory Testing Performed							
Test Boring	Sample No.	Depth (ft)	Moisture Content	Sieve Analysis	Hydrometer	Organic Content	Atterberg Limits
B-1	S-5	8-10	x		x	x	x
B-1	S-8	20-22	x	x		x	
B-1	S-11	35-37	x		x		x
B-2	S-4	6-8	x		x		x
B-2	S-6	10-12	x		x	x	
B-3	S-7	15-17	x		x		x
B-3	S-8	20-22	x			x	
B-3	S-10	30-32	x		x	x	x
B-3	S-15	55-57	x		x		
B-3	S-19	75-77	x	x			
B-3	S-21	85-87	x	x			
B-3	S-23	95-97	x	x			

3.0 SUBSURFACE CONDITIONS

The test borings revealed several feet of essentially granular fill followed by deep, soft lacustrine deposits with organics. The individual subsurface logs should be referenced for the conditions at each test boring location. A summary of these conditions by stratum is provided below.

Surface and Fill Materials

Asphalt pavement approximately 0.5 feet thick was present at the ground surface at borehole B-2, and about 0.4 feet of crushed stone was present at B-3; no distinct surface material was noted at B-1. Directly beneath any surface material that was present, fill soils were disclosed to depths of about six to eight feet at the test boring locations. The fill was very loose to compact in relative density overall (typically loose) and generally comprised of silty sands and sandy silts with lesser amounts of gravel or clay. Relatively minor amounts of organics, peat and/or glass were also noted within the fill in places as indicated by the recovered samples.

Indigenous Soils

The native lacustrine deposits underlying the fill were generally comprised of silts with lesser amounts of clay, sand and/or organics, occasionally interlayered with peat (composed

primarily of organic matter), and occasionally with sand as the prevalent grain size. These soils were typically very soft/loose in consistency and extended to depths of about 23 to 30 feet. Below this, the fine-grained deposits graded to clayey silt with trace to little amounts of embedded small shells and plant matter, exhibiting the characteristics of marl, again for the most part very soft in consistency. The marl deposit was present to depths of 45 to 50 feet or greater.

Underlying the marl were very loose sandy silts to a depth of about 75 feet, then interlayered silty sands, sandy silts and clayey silts to the extent of the depths explored at 97.0 feet below existing grade. Soils below 75 feet were typically loose to firm in relative density; little amounts of gravel were noted near the borehole termination depth at B-3.

The native soils encountered are classified among the ML, SM, MH and Pt group soils using the Unified Soil Classification System (USCS), and as previously indicated, are for the most part especially soft/loose in relative consistency/density.

The laboratory test data indicate the fine-grained deposits are low to marginally high plasticity silts and clays with organics. Measured liquid limits ranged from 29 to 53 percent, and corresponding plastic limits ranged from NP (not plastic) to 43 percent; plasticity indices ranged from NP to 10 percent. The natural moisture content of these soils was 30.1 to 93.2 percent, and was typically near or above the liquid limit. Organic content in the samples tested for that parameter was in the range of 1.9 to 21.4 percent. Consolidation testing performed on these lacustrine deposits for other projects in the area indicates a compression index (C_c) in the range of 0.18 to 0.48 for soils with organic content between 4.2 to 11.8 percent; the compression index of primarily organic soil layers is expected to be considerably greater.

Bedrock

Bedrock was not encountered within the depths explored for this study. For information purposes, the Geologic Map of New York, Finger Lakes Sheet (New York State Education Department, 1970) maps bedrock underlying the project area as shales, siltstones and limestones of the Genesee group.

Groundwater Conditions

Water level measurements were periodically made as the boreholes were advanced and/or upon the completion of sampling, and these measurements are noted on the subsurface logs. It should be understood that time sufficient for groundwater to enter the augers and achieve a static level likely did not elapse prior to these measurements being taken, given that permeability of the fine-grained soils is expected to be rather slow.

Based on the degree of wetness of the recovered soil samples and water level measurements in the boreholes and observation well, it appears that groundwater is present at a depth of about four to eight feet below existing grade, this being at or near the interface of the fill and native soils, and near to (or a few feet above) water levels in the Cayuga Inlet.

Water levels periodically measured at the MW B-2 observation well are tabulated below:

Table 2 - Observation Well Water Level Summary at MW B-2		
Date	Measured Water Level in Well	
	Depth Below Grade (ft.)	Elevation (ft.)
3/24/15	8.7	383.8
4/20/15	6.2	386.3
Approx. Ground Surface Elevation at Well (ft.)	392.5	

Water may also have a tendency to become trapped in the upper fill soils and/or perched upon the relatively impermeable native clayey soils below. It should be expected that groundwater levels, and the quantity/extent of any perched water, will vary with seasonal fluctuations in precipitation, runoff and water levels in the Cayuga Inlet.

4.0 CONCLUSIONS AND RECOMMENDATIONS

Planning for design and construction of future structures will be impacted primarily by the presence of fill and especially soft/compressible native soils, along with relatively shallow groundwater. The fill varies in composition and is typically loose, while the native clayey deposits with organics under the fill are of low strength and are expected to be highly compressible.

Considering the poor subgrade conditions, Empire has evaluated three options for design of the new buildings including: a) pile foundation system, b) conventional spread foundations, and c) mat foundation system. Each of these alternatives is described in further detail subsequently.

Regardless of the foundation system chosen, it should be understood that any planned grade increases would be expected to induce some consolidation settlement in the soft native soils. Should any grade increases ultimately be planned, we recommend the fill/grading across the site be performed well in advance of building construction and allowed to sit, so as to permit the underlying soft/compressible soils to fully consolidate under the weight of the added fill and/or surcharge. Pre-loading and/or surcharging the building area may also be considered as a means of mitigating building settlement potential, depending on foundation type. Also depending on foundation type and other details of the proposed configuration, the use of transition slabs and/or flexible utility connections may be warranted to accommodate any chronic differential movement that may occur between the finished building and surrounding ground.

The required waiting period for a pre-loading program would depend on the consolidation rate of the soils, but may take upwards of several months; this should be understood and accommodated in developing the project schedule. Settlement plates should be installed as part of a settlement monitoring program so as to track the rate and total amount of settlement that occurs.

4.1 Building Foundations

The following building foundation options are presented in no particular order of preference, as each is viewed as potentially workable, depending on the specific type and configuration of the structure(s) ultimately built. It may be prudent to perform additional boreholes once a specific building location and configuration is settled on, so as to confirm the conditions at that location and allow a more refined geotechnical evaluation.

Pile Foundations

A driven displacement pile foundation system may be considered for support of the building. With this option, the existing fill may be left in place and the new building structure and floor slab supported on piles. In general, no suitable stratum was disclosed that would support end bearing piles, and in the absence of a suitable end bearing stratum, the piles must develop their capacity primarily through friction in the native soils. As the native soils were soft and/or loose, pile capacities will be limited.

For preliminary planning purposes, an allowable static capacity of 20 kips may be assumed for a single tapered timber pile (7-inch tip and 11-inch butt) driven to a nominal depth of 50 feet or greater. This pile embedment depth and estimated capacity was determined based on a theoretical static analysis and should be satisfactory for preliminary design purposes. The actual production pile lengths may vary and should be determined based on the results of a test pile program, as described in section 4.5. Other types of piles may offer a satisfactory alternative to timber piles, as material availability, cost, contractor preference or expertise with a given type of pile, or other factors which may render one type of pile more attractive than another; Empire would be pleased to consult further on this as necessary. A pile foundation system will provide the greatest level of assurance against excessive building settlement.

It is reiterated that if grade increases are planned, the site should be pre-loaded as necessary to take consolidation settlement of the soft/organic soils induced by new loads "out of the system". Fill which is placed on soils which are not sufficiently consolidated prior to construction may result in downdrag loads on piles in excess of their capacity, or relative settlement/movement of the ground outside the building which is otherwise stationary on piles.

Conventional Spread Foundation System

As large spread footings have apparently performed satisfactorily at the existing DOT building, it seems that consideration could be given to the use of conventional spread

foundations for support of a proposed structure that is relatively light. A maximum net allowable soil bearing pressure of 1,000 pounds per square foot (psf) may be assumed for preliminary planning purposes. Foundation subgrades should be prepared as described below.

Continuous foundations should have a minimum width of two feet, and individual foundations should have a minimum width of three feet. All exterior foundations should be seated at least four feet below final adjacent grades for frost protection. Interior foundations (beneath heated spaces) should bear at a nominal depth of 2.5 feet or greater below finished floor to develop adequate bearing capacity.

It should be understood that the use of conventional spread foundations will require complete removal and replacement of existing fill beneath foundations, along with any organic soils or remnants of former structures that may be found. Furthermore, the undercut should be extended at least two feet below planned foundation bearing grades, even if this requires removal of native soils, to establish a uniform and stable base for construction and to reduce the potential for settlement. Over-excavation beneath the proposed foundations should extend horizontally beyond each side of the foundation a distance equal to at least one-half the depth of undercut below the final bearing grade elevation. The over-excavation should be backfilled with an imported structural fill which adheres to the material and placement recommendations outlined in Attachment C.

As subsurface conditions may vary from that found at the test boring locations, careful inspection of the subgrades is recommended as excavations are made to verify that foundations are constructed on the materials intended. Additionally, the undercutting work may be impacted by perched groundwater and/or soft subgrade conditions, this requiring special construction procedures to maintain the integrity of the subgrade soils and facilitate dewatering as described in section 4.5.

Any water which enters foundation excavations should be promptly removed together with any softened bearing grade materials. All final bearing grades should be firm, stable, and free of any loose soil, mud, water or frost. Foundations proportioned for modest pressures and constructed as described herein should experience settlement within limits that are generally considered to be typical and tolerable.

Mat Foundation

A rigid mat foundation system would provide an added measure of assurance against total and differential settlement as compared with conventional spread foundations. The use of a mat foundation system would also require removal and replacement of all existing fill and undercutting of native soils as required to provide a minimum two feet thick base of granular material beneath the mat, even if this requires removal of some native soils. This is intended to establish a uniform and stable base for construction and to reduce the potential for settlement. Assume an allowable contact pressure of 500 pounds per square foot (psf) for a mat foundation for preliminary planning purposes.

Again, the site should be pre-loaded as necessary to take primary and secondary consolidation of the soft/organic soils induced by any new loads "out of the system". The total amount of primary and secondary settlement expected in association with the new loads should be used as the target displacement for the pre-loading/settlement monitoring program. Soils which are not sufficiently consolidated prior to construction may result in excessive or uneven settlement, or excessive movement of the building relative to the surrounding ground.

Finally, the inclusion of a basement level along with a mat foundation would be of benefit in limiting settlement, as the weight of the building would be partially or fully compensated for by the excavated soils. However, considering the shallow groundwater and proximity to the Cayuga Inlet, construction dewatering, foundation drainage and waterproofing demands would of course be greater in this instance.

4.2 Floor Slabs

The recommended means of floor slab support will be a function of the foundation type selected. In the event that piles are used for foundation support, we recommend the use of a structural floor slab that is also pile supported. It is assumed that the floor slab would be integrated with a mat foundation system.

If floor slabs are not pile supported or part of a mat foundation system, then complete removal and replacement of existing fill from beneath the building floor slab is recommended to minimize the potential for excessive settlement. As noted previously, removal and replacement of the fill may be impacted by high groundwater levels and/or soft subgrade conditions. This should be coordinated with any site pre-loading as appropriate.

Alternatively, cognizant of the potential groundwater impacts on removal/replacement work, and in the interest of economic site development, consideration may be given to leaving the fill in place after its surface is proof-rolled to identify any soft areas, which should be locally undercut and stabilized as necessary (note that the DOT building floors appear to have performed satisfactorily). If this option is chosen, the owner must accept some risk of floor slab settlement should voids and/or prevalent organic matter, not identified through the subsurface investigation or through proof-rolling, be present in the fill materials left in place.

In any event, grade-supported interior floors should be constructed over a minimum six inch thick base course of subbase stone; material specification and placement guidelines for the subbase stone are provided in Attachment C (see structural fill). Required grade increases should be performed well in advance of building construction such that the soft soils at depth are allowed to fully consolidate under the weight of the added fill, as described previously, and floor slab subgrades should be prepared as outlined in section 4.5. Under these parameters, the floor slabs may be designed and constructed in accordance with procedures recommended by the Portland Cement Association or American Concrete Institute using 100 pounds per cubic inch as a modulus of subgrade reaction at the top of the base layer.

Basement Floors

In the event a basement is included, basement floor areas which extend below groundwater levels should be provided with a subslab drainage system consisting of a crushed stone drainage layer (along with a perimeter foundation drain). In this case, it is recommended that the planned subgrade elevation be undercut by at least twelve inches using a backhoe equipped with a steel plate welded across the bucket's teeth. A geotextile filter fabric (Mirafi 160N or equivalent) should be placed over the subgrade followed by a base of clean crushed stone, along with collection and discharge piping as appropriate (recommended spacing of collection laterals no greater than 15 feet). The stone may be an equal blend of No. 1 and No. 2 size aggregate as defined in Table 703-4 of the NYSDOT Standard Specifications for Construction and Materials. The stone should be placed as a single lift and chinked together by completing several passes with a dual drum walk-behind vibratory roller.

These recommendations assume that positive gravity drainage can be, and is provided to the system. While less desirable than gravity drainage, a redundant sump and pump system (with backup, in the event of a primary pump failure) may also be considered. If adequate drainage is not provided, the basement walls and floors must be designed to resist the hydrostatic pressures induced by high groundwater levels, and waterproofing should be provided as appropriate.

4.3 Seismic Design Considerations

Site Class

In our estimation, the site meets the criteria for seismic Site Class "E" (soft soil profile) as set forth in Table 1613.5.2 of the Building Code of New York State. Spectral response accelerations in the project area were obtained from the U.S. Seismic Design Maps web application available at the United States Geological Survey (USGS) web site (www.usgs.gov). The accelerations are based on 2008 USGS seismic hazard data as promulgated in the 2010 NYS Building Code.

Using geographic coordinates 42.4482°N, 76.5065°W for the project site, the indicated maximum spectral response accelerations normalized for reference Site Class B conditions are 0.125g for the short period response (0.2 second, S_s) and 0.048g for the 1 second period response (S_1). For design purposes, these spectral response accelerations must be modified for the soil profile determined at the project site, as follows:

Maximum spectral response accelerations, modified for Site Class E:

- Short Period Response (S_{MS}) - 0.311g
- 1 Second Period Response (S_{M1}) - 0.170g

Maximum five percent damped design spectral response accelerations:

- S_{DS} - 0.208g
- S_{D1} - 0.113g

Liquefaction Potential

Based on the subsurface conditions encountered, the potential for liquefaction to occur during a seismic event is considered low.

4.4 Pavement Design

Soils disclosed by the test borings are considered adequate for the support of asphalt pavement. However, any required grade increases should be performed well in advance of construction as described elsewhere herein, and pavement subgrades should be prepared as outlined in section 4.5.

Design recommendations are provided in the table below for commercial duty hot mix asphalt pavement, one section intended for truck use and areas subjected to frequent and/or heavier loads (heavy duty), and another intended for automobile parking and occasional light delivery truck traffic (standard duty). Pavement design is dependent on a number of service parameters for which limited information was available; in the absence of specific information, typical values were assumed.

Table 3 - Recommended Asphalt Pavement Sections		
Pavement Course	Thickness (inches)	
	Heavy Duty Section	Standard Duty Section
Top	2.0	1.5
Binder	3.0	2.0
Subbase	12	8
Geotextile	✓	✓

It may be necessary to increase subbase stone thickness in some areas to improve subgrade conditions and to promote drainage. Pavement structure components should meet the following material specifications:

Table 4 - Asphalt Pavement Section Material Specifications	
Asphalt Top Course	NYSDOT Type 7 Top Course - Hot Mix Asphalt
Asphalt Binder Course	NYSDOT Type 3 Binder Course - Hot Mix Asphalt
Stone Subbase Course	NYSDOT Type 2 Subbase - Crushed Aggregate
Geotextile	Woven polypropylene stabilization/separation geotextile (Mirafi 500X or equivalent)

Accumulation of water on pavement subgrades should be avoided by grading the subgrade to a

slope of at least two percent, and/or by providing underdrains. Failure to provide adequate drainage will shorten pavement life.

4.5 Site Preparation and Construction

Construction Dewatering

Construction dewatering should be implemented as necessary along with excavation activities, such that work proceeds in the dry. Surface water should be diverted away from open excavations and prevented from accumulating on exposed subgrades. Any seepage of groundwater should be intercepted and maintained below the excavation bottom. Subgrades will be susceptible to strength degradation in the presence of excessive wetness.

The amount of groundwater encountered will depend on the excavation location, depth and groundwater conditions at the time of construction. We expect that for the most part, it will occur as relatively slow seepage which may be controlled through standard sump and pump methods of dewatering. More pervious sands, gravels and/or fill materials, if encountered, may yield more substantial quantities of groundwater. Groundwater associated impacts on construction may be lessened if site development is planned during seasonally dry periods.

Driven Pile Construction

Timber piles should be designed to develop their capacity primarily through friction in the native soils. For preliminary design purposes, cohesion of 650 psf may be assumed for the clayey silts, and an angle of internal friction of 26 degrees may be assumed for the sandy native soils. An effective (submerged) unit weight of 50 pounds per cubic foot may be assumed in each case.

As previously discussed in section 4.1, an allowable capacity of 20 kips has been estimated for a tapered timber pile (7-inch tip and 11-inch butt) driven to a nominal depth of 50 feet below existing grade. If a different pile length/size is selected, its static capacity may be estimated using the design parameters above. Per the Building Code of NYS, final timber pile design must be in accordance with the AFPA NDS.

The estimated pile capacity should be verified through wave equation analysis prior to installation of the piles, and dynamic pile driving analyzer (PDA) testing of at least one pile. The PDA testing should be performed as the pile is driven to its planned depth, and again on a restrike of the pile one or more days after the initial drive. This or whatever load test method is used should verify that the design pile capacity has been achieved with an adequate factor of safety (i.e., per the Building Code of NYS, allowable load not more than one-half the ultimate load capacity of pile as determined by load test).

The piles should be equipped with a driving shoe to limit potential damage at the toe when driving, and with banding at the butt end to prevent splintering from hammer impact. Plumbness of the piles should be maintained within one percent of the total length. Any

misaligned or damaged piles should be replaced.

A qualified individual should observe all pile driving and prepare an individual pile driving report for each pile installed. The report should include pile number and location, hammer and cushion type, pile size and material, installed length, blows per foot, unusual conditions encountered during driving, top of pile elevation following driving, notes on any re-striking that may be necessary and other pertinent information as appropriate. Installed piles should be monitored for potential heaving during installation of adjacent piles. Any piles that heave should be re-driven and re-seated as appropriate.

Excavation for Foundation Construction

Excavation to the proposed subgrades for foundation construction should be performed using a method which limits disturbance to subgrades, such as a backhoe equipped with a smooth blade bucket. Where non-pile supported, all existing fill should be removed from beneath proposed foundation bearing grades, along with any disturbed soils, remains of former structures or otherwise unsuitable materials that may be found.

Subgrades should be carefully inspected during construction to verify that foundations are constructed on suitable materials. Subgrades should be observed and evaluated by the geotechnical engineer prior to foundation construction, or where over-excavation is required, before placement of structural fill. Placement and compaction of structural fill beneath foundations should be as outlined in Attachment C.

In places, exposed subgrades may soften and swell in the presence of excess wetness and foot traffic upon excavation. Should this occur, we recommend over-excavating the subgrade by one foot and placing a separation/drainage geotextile (e.g., Mirafi 140N) over the undercut subgrade, followed by 12 inches of drainage stone (equal blend of NYSDOT no.1 and no. 2 sized aggregate). The drainage stone should be consolidated with several passes of a vibratory plate tamper, and the geotextile should be wrapped completely around the drainage stone. Where subgrades are undercut to improve bearing capacity and limit settlement potential, a drainage stone layer may count toward the total required thickness of replacement structural fill.

All bearing grades for foundation construction should be protected from precipitation and surface water. Water should not be allowed to accumulate on the soil bearing grades and the bearing grades should not be allowed to freeze, either prior to or after construction of foundations. Any water which enters foundation excavations should be promptly removed together with any softened bearing grade materials. All final bearing grades should be firm, stable, and free of any loose soil, mud, water or frost.

Foundation excavations should be backfilled as soon as possible and prior to construction of the superstructure. We recommend that foundation backfill consist of structural fill or suitable granular fill.

Subgrade Preparation for Slab-on-Grade and Pavements

Beneath new building floor slabs and pavement areas, all existing pavements and topsoil should be removed, along with any remnants of former structures, stumps, roots, excessively coarse or other deleterious material which may be found; all existing fill should be removed from beneath building floor slabs for the greatest level of assurance against settlement.

Following removal of surface materials and excavation to proposed subgrades, the exposed subgrades should be proof-rolled to evaluate their condition. The proof-rolling should be performed prior to any required fill placement, using a smooth drum roller with a static weight of at least seven tons. The roller should be operated in the static (non-vibratory) mode and complete at least two passes over the exposed subgrades in opposite directions.

The subgrade proof-rolling should be observed by the geotechnical engineer. Any areas which appear wet, loose, soft, unstable or otherwise unsuitable should be undercut. Over-excavation, which may be required as a result of the evaluation, should be performed based on guidance provided the engineer. Where undercut to remove unsuitable soils and improve stability, subgrades should be backfilled with structural fill.

Suitable granular fill may be used for general grade increases and to raise site grades beneath the subbase course for slabs-on-grade and pavements; it is recommended that utility trenches located within slab-on-grade areas be backfilled with structural fill. Placement of material to raise site grades should be monitored by a representative of the engineer to ensure these recommendations are adhered to. Material and placement guidelines for imported granular fill materials are provided in Attachment C.

During construction, the contractor should take precautions to limit construction traffic over building slab and pavement subgrades. Any subgrades which become damaged, rutted, unstable or are otherwise degraded should be undercut and repaired as necessary prior to placement of the subbase course.

Excavation Safety

All excavations must be performed in accordance with federal Occupational Safety and Health Administration (OSHA) standards, along with state and local codes, as applicable. Site soils should be considered Type C pursuant to 29 CFR Part 1926 Subpart P. The contractor is solely responsible for all aspects of excavation safety.

5.0 CONCLUDING REMARKS

This report was prepared to assist in planning for the proposed redevelopment of the existing NYSDOT maintenance facility site on 3rd Street in Ithaca, New York. The report has been prepared for the exclusive use of Fisher Associates and affiliated parties for specific application to this site and project only. The recommendations were prepared based on Empire's understanding of the project, as described herein, and through the application of generally accepted soils and foundation engineering practices. No other warranties, expressed or implied, are made by the conclusions, opinions, recommendations or services provided.

Empire should be informed of any changes to the planned construction so that it may be determined whether the changes warrant modification to the recommendations contained herein. Empire should also be afforded the opportunity to review final plans and specifications to verify that the recommendations were properly interpreted and applied.

Important information which should be reviewed regarding the use and interpretation of this report is presented in Attachment D.

Respectfully Submitted,
EMPIRE GEO-SERVICES, INC.

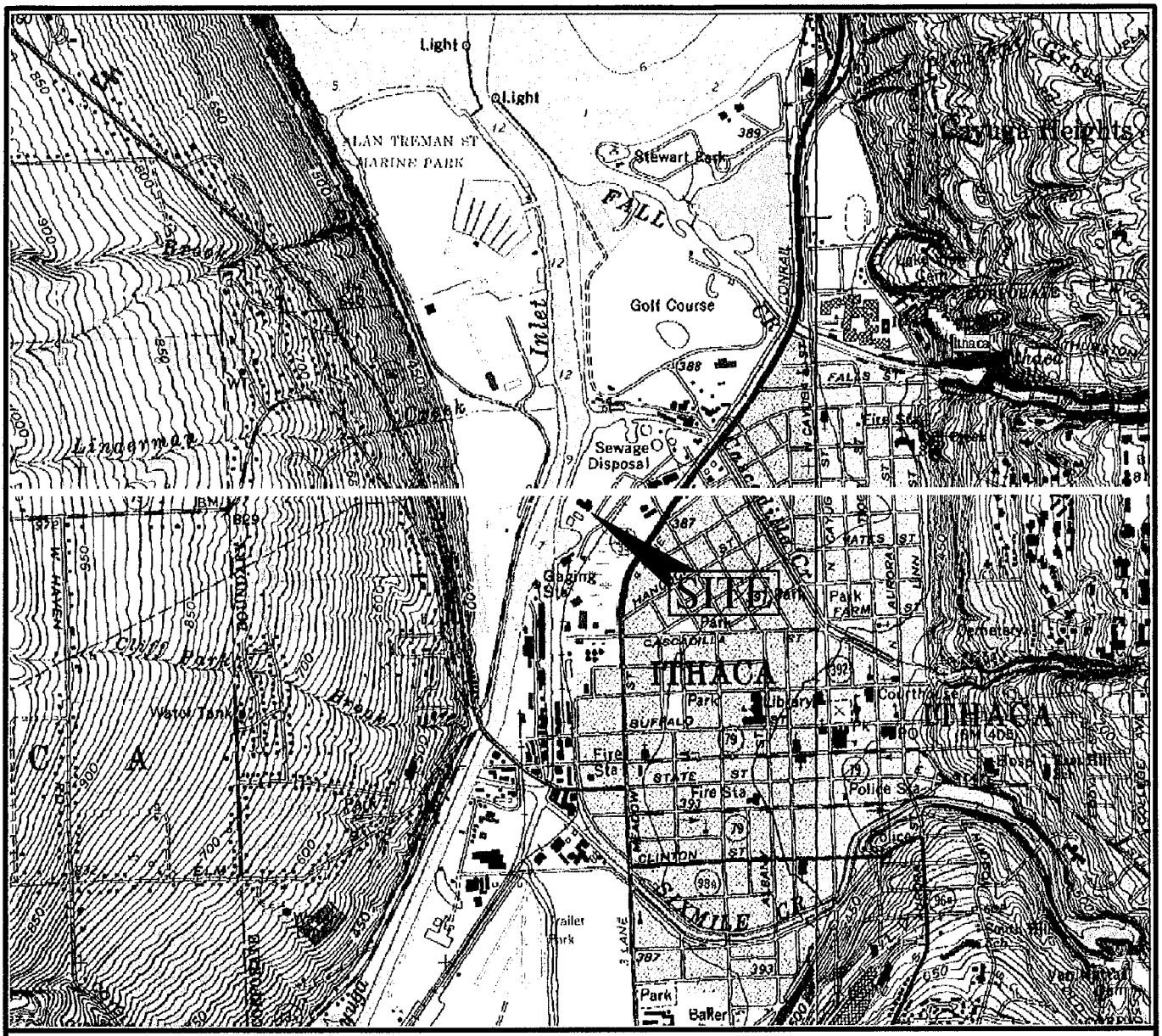
Parviz Akbari
Geotechnical Engineer

John S. Hutchison, P.E.
Geotechnical Engineer
and Project Reviewer

Enc.: Figures and Attachments A through D

Figures

Site Location Map
Subsurface Investigation Plan



SCALE 1:24,000

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

CONTOUR INTERVAL 10 FEET

DATUM IS MEAN SEA LEVEL

SOURCE: ITHACA WEST, NY
USGS 7.5' QUADRANGLE (1990).

EMPIRE GEO SERVICES INC

a subsidiary of SJB Services, Inc.

SITE LOCATION MAP

PRELIMINARY GEOTECHNICAL EVALUATION
EXISTING NYSDOT MAINTENANCE FACILITY
3rd STREET
ITHACA, NEW YORK

SCALE:	AS SHOWN
DATE:	4/15
DRAWN BY:	jsh
REV'D BY:	
DWG. FILE:	be15049
PROJ. No.:	BE-14-049
FIGURE No.:	1

BASE MAP: 2012 DIGITAL ORTHOIMAGERY – NYS INTERACTIVE MAPPING GATEWAY.

EMPIRE GEO SERVICES INC
a subsidiary of SJB Services, Inc.

SUBSURFACE INVESTIGATION PLAN

PRELIMINARY GEOTECHNICAL EVALUATION
EXISTING NYSDOT MAINTENANCE FACILITY
3rd STREET
ITHACA, NEW YORK

SCALE:	±1" = 100'
DATE:	4/15
DRAWN BY:	jsh
REV'D BY:	
DWG. FILE:	be15049
PROJ. No.:	CE-15-049
FIGURE No.:	2

ATTACHMENT A

Subsurface Logs and Key

DATE: 4-1-2015
STARTED: 3/19/2015
FINISHED: 3/19/2015

SJB SERVICES, INC.

SUBSURFACE LOG

HOLE NO. B-1
SURF. ELEV. 391.9
G.W. DEPTH See Notes
SHEET 1 of 2

PROJECT: Relocation of NYSDOT Maintenance Facility
CLIENT: Fisher Associates
LOCATION: 3rd Street
Ithaca, Tompkins County, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0-6	6-12	12-18	18-24	N	Rec (ft)	SOIL OR ROCK CLASSIFICATION	NOTES
		S-1	32	29	20	16	49	1.8	Fill: Gray SAND, some f. Gravel, little Silt, SM (Moist, Compact)	
		S-2	6	5	3	4	8	1.6	Fill: Gray SILT, some f. Sand, little Clay, trace organics ML (Moist, Loose)	
5		S-3	1	1	3	2	4	1.3	Fill: Gray silty f.-m. SAND, some clayey Silt, trace organics, trace glass, SM (Wet, Loose)	
		S-4	1	2	1	2	3	2.0	(Very Loose)	
		S-5	WH	1	1	2	2	2.0	Brownish gray organic clayey SILT, little Peat, trace sand, MH (Moist, Soft)	WH: weight of hammer and drilling rods.
10		S-6	3	4	3	4	7	2.0	(Medium)	
15		S-7	1	1	1	2	2	2.0	Gray f. SAND, some Silt, trace peat, SM (Wet, Very Loose)	
20		S-8	WR	WH	1	2	1	2.0		WR: weight of drilling rods.
25		S-9	1	1	1	1	2	2.0		
30		S-10	WH	WH	1	1	1	2.0	Gray SILT, little Clay, trace shells, trace peat, ML (Wet, Very Soft)	S-10 to completion: Marl deposits.
35		S-11	WH	1	1	1	2	2.0		
40										

DRILLER: John Warner
DRILL RIG: CME-75
METHOD OF INVESTIGATION: 31/4" I.D. Hollow Stem Augers, 2" Split Spoon Sampler (ASTMD1586)
JOB NUMBER: BE-15-049
CLASSIFIED BY: Geotechnical Engineer

DATE: 4-1-2015
STARTED: 3/19/2015
FINISHED: 3/19/2015

SJB SERVICES, INC.

SUBSURFACE LOG

HOLE NO. B-1
SURF. ELEV. 391.9
G.W. DEPTH See Notes
SHEET 2 of 2

PROJECT: Relocation of NYSDOT Maintenance Facility
CLIENT: Fisher Associates
LOCATION: 3rd Street
Ithaca, Tompkins County, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0 6 / 6 12 / 12 18 / 18 24 / N	Rec (ft)	SOIL OR ROCK CLASSIFICATION	NOTES
45		S-12	WH WH 1 2 1	2.0	Similar	
		S-13	WH WH 1 1 1	2.0		
		S-14	WH 1 1 2 2	2.0		
50					Test boring complete at 50 feet.	Freestanding water was not encountered during drilling or after completion of sampling with augers at 48 feet. Borehole sidewalls caved-in at about 3.6 feet after augers were removed.
55						
60						
65						
70						
75						
80						

DRILLER: John Warner
DRILL RIG: CME-75
METHOD OF INVESTIGATION: 3 1/4" I.D. Hollow Stem Augers, 2" Split Spoon Sampler (ASTMD1586)
JOB NUMBER: BE-15-049
CLASSIFIED BY: Geotechnical Engineer

DATE: 4-1-2015
STARTED: 3/20/2015
FINISHED: 3/20/2015

SJB SERVICES, INC.

SUBSURFACE LOG

HOLE NO. B-2
SURF. ELEV. 392.5
G.W. DEPTH See Notes
SHEET 1 of 1

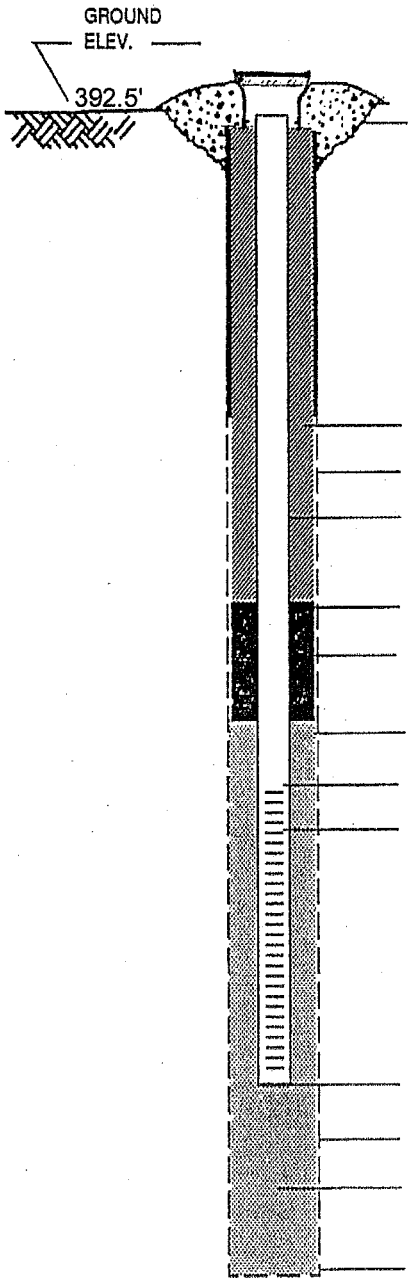
PROJECT: Relocation of NYSDOT Maintenance Facility
CLIENT: Fisher Associates
LOCATION: 3rd Street
Ithaca, Tompkins County, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0 6	6 12	12 18	18 24	N	Rec (ft)	SOIL OR ROCK CLASSIFICATION	NOTES
		S-1	-	7	4	6	10	1.5	Fill: Brown f.-m. SAND, little Silt, SM (Moist, Firm)	Driller noted approximately 0.5 feet of asphalt at the ground surface.
		S-2	7	5	6	6	11	1.6	"and" SILT	
5		S-3	3	2	1	1	3	0.0	No recovery (Very Loose)	
		S-4	1	1	1	WH	2	2.0	Gray SILT, some Clay, trace sand, trace peat, ML (Very Moist, Very Soft)	
		S-5	1	1	WH	1	1	2.0	Gray SILT, trace clay, trace to little Peat, ML (Wet, Very Soft)	WH: weight of hammer and drilling rods.
10		S-6	1	2	2	2	4	2.0		
15		S-7	WH	WH	WH	WH	-	2.0	Gray SILT, some f. Sand, little Peat, ML (Wet, Very Loose)	
20		S-8	WH	WH	2	3	2	2.0	Gray f.-m. SAND, little Silt, trace peat (Wet, Very Loose)	
		S-9	WH	WH	WH	1	-	2.0	Brownish gray SILT, little to some Clay, little Shells, ML (Very Moist, Soft)	S-9: Marl deposit.
25									Test boring complete at 25 feet.	Freestanding water was not encountered during drilling. After completion of sampling, water level was at 22.2 ft with augers at 23 ft.
30										
35										
40										

DRILLER: John Warner
DRILL RIG: CME-75
METHOD OF INVESTIGATION: 3 1/4" I.D. Hollow Stem Augers, 2" Split Spoon Sampler (ASTMD1586)
JOB NUMBER: BE-15-049
CLASSIFIED BY: Geotechnical Engineer

MONITORING WELL COMPLETION RECORD

PROJECT: Relocation of NYSDOT Maintenance Facility	
PROJECT NUMBER: BE-15-049	**DRILLING METHOD: ASTM D-1586**
WELL NUMBER: MW B-2	**GEOLOGIST: N/A**
DRILLER: J. Warner	**INSTALLATION DATE(S): 3/20/2015**



TYPE OF SURFACE SEAL: Flush Mount & Concrete Seal

ELEV./ TOP OF RISER PIPE: 3.6" below Ground Surface Elevation=392.2 feet

TYPE OF BACKFILL: Cuttings

BOREHOLE DIAMETER: 6-Inches

I.D. OF RISER PIPE: 2-Inches

TYPE OF RISER PIPE: PVC

DEPTH OF SEAL: 10 feet

TYPE OF SEAL: Bentonite Chips

DEPTH OF SAND PACK: 12 feet

DEPTH OF TOP OF SCREEN: 13 feet

TYPE OF SCREEN: Slotted

SLOT SIZE X LENGTH: 0.010 X 10 feet

I.D. OF SCREEN: 2-Inches

TYPE OF SAND PACK: #0 Morie

DEPTH BOTTOM OF SCREEN: 23 feet

DEPTH BOTTOM OF SAND PACK: 25 feet

TYPE OF BACKFILL BELOW OBSERVATION WELL: Sand

ELEVATION/ DEPTH OF HOLE: 25 feet

DATE: 4-1-2015
STARTED: 3/18/2015
FINISHED: 3/18/2015

SJB SERVICES, INC.

SUBSURFACE LOG

HOLE NO. B-3
SURF. ELEV. 393.6
G.W. DEPTH See Notes
SHEET 1 of 3

PROJECT: Relocation of NYSDOT Maintenance Facility
CLIENT: Fisher Associates
LOCATION: 3rd Street
Ithaca, Tompkins County, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0-6	6-12	12-18	18-24	N	Rec (ft)	SOIL OR ROCK CLASSIFICATION	NOTES
		S-1	10	6	7	10	13	1.6	Fill: Brown f.-m. SAND, some Silt (Wet, Firm)	Driller noted approximately 0.4 feet of crushed stone at ground surface.
		S-2	5	4	3	4	7	1.4	Becomes gray (Loose)	
5		S-3	5	3	2	2	5	1.6	Fill: Gray SILT, some f. Sand, trace peat (Moist, Loose)	WH: weight of hammer and drilling rods.
		S-4	4	3	3	2	6	1.8	Contains "and" f.-m. SAND (Wet)	
		S-5	1	4	2	2	6	0.6	Gray f.-m. Silty SAND and black organic clayey SILT, trace peat, (Moist, Loose)	S-5, S-6: seams.
10		S-6	3	2	2	2	4	1.5		
15		S-7	WH	WH	WH	WH	-	2.0	Gray SILT, little Clay, trace f. sand, trace peat, ML (Moist, Very Soft)	
20		S-8	WH	WH	2	4	4	2.0	Brown-dark brown PEAT, little gray silt, Pt (Moist, Soft)	
25		S-9	1	2	2	2	4	2.0	Gray SILT, trace clay, trace shells, trace peat, ML (Very Moist to Wet, Soft)	S-9 thru S-12: Marl deposits.
30		S-10	WH	WH	WH	WH	-	2.0	(Very Soft)	
35		S-11	WH	WH	WH	WH	-	2.0		WR: weight of drilling rods.
40										

DRILLER: John Warner
DRILL RIG: CME-75
METHOD OF INVESTIGATION: 31/4" I.D. Hollow Stem Augers, 2" Split Spoon Sampler (ASTMD1586)
JOB NUMBER: BE-15-049
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DATE: 4-1-2015
STARTED: 3/18/2015
FINISHED: 3/18/2015

SJB SERVICES, INC.

SUBSURFACE LOG

HOLE NO. B-3
SURF. ELEV. 393.6
G.W. DEPTH See Notes
SHEET 2 of 3

PROJECT: Relocation of NYSDOT Maintenance Facility
CLIENT: Fisher Associates
LOCATION: 3rd Street, Ithaca, Tompkins County, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0-6	6-12	12-18	18-24	N	Rec (ft)	SOIL OR ROCK CLASSIFICATION	NOTES
		S-12	WH	WH	WH	2	-	2.0	Similar	WH: weight of hammer and drilling rods. WR: weight of drilling rods.
45		S-13	WH	WH	WH	WH	-	2.0	Grayish brown SILT, little f. Sand, ML (Wet to Saturated, Very Loose)	
50		S-14	WH	WH	WH	3	-	2.0	Grades to "trace to little" Clay, "trace" f. sand	
55		S-15	WR	WR	WH	3	-	2.0		
60		S-16	WR	WH	WH	6	-	2.0		
65		S-17	WR	WH	3	3	3	2.0		
70		S-18	WH	WH	1	3	1	2.0		
75		S-19	2	6	8	11	14	2.0	Grayish brown f.-m. SAND, some Silt, SM (Wet to Saturated, Firm)	
80										

DRILLER: John Warner
DRILL RIG: CME-75
METHOD OF INVESTIGATION: 31/4" I.D. Hollow Stem Augers, 2" Split Spoon Sampler (ASTMD1586)
JOB NUMBER: BE-15-049
CLASSIFIED BY: Geotechnical Engineer

DATE: 4-1-2015
STARTED: 3/18/2015
FINISHED: 3/18/2015

SJB SERVICES, INC.

SUBSURFACE LOG

HOLE NO. B-3
SURF. ELEV. 393.6
G.W. DEPTH See Notes
SHEET 3 of 3

PROJECT: Relocation of NYSDOT Maintenance Facility
CLIENT: Fisher Associates
LOCATION: 3rd Street
Ithaca, Tompkins County, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0 6	6 12	12 18	18 24	N	Rec (ft)	SOIL OR ROCK CLASSIFICATION	NOTES
		S-20	WR	2	2	3	4	2.0	Grayish brown varved/partings Clayey SILT and f. Sandy SILT, ML (Wet, Loose)	WR: weight of drilling rods.
85		S-21	1	2	6	8	8	2.0		WH: weight of hammer and drilling rods.
90		S-22	1	8	3	7	11	1.6	(Firm)	Driller noted sand and gravel starting at about 93 feet.
95		S-23	21	17	10	19	27	1.3	Gray SAND, little Silt, little Gravel, SM (Wet, Firm)	
									Test boring complete at 97 feet.	Freestanding water was not encountered during drilling or after completion of drilling.
100										Borehole sidewalls caved-in at about 22.4 feet after augers were removed.
105										
110										
115										
120										

DRILLER: John Warner
DRILL RIG: CME-75
METHOD OF INVESTIGATION: 31/4" I.D. Hollow Stem Augers, 2" Split Spoon Sampler (ASTMD1586)
JOB NUMBER: BE-15-049
CLASSIFIED BY: Geotechnical Engineer

GENERAL INFORMATION & KEY TO SUBSURFACE LOGS

The Subsurface Logs attached to this report present the observations and mechanical data collected by the driller at the site, supplemented by classification of the material removed from the borings as determined through visual identification by technicians in the laboratory. It is cautioned that the materials removed from the borings represent only a fraction of the total volume of the deposits at the site and may not necessarily be representative of the subsurface conditions between adjacent borings or between the sampled intervals. The data presented on the Subsurface Logs together with the recovered samples provide a basis for evaluating the character of the subsurface conditions relative to the project. The evaluation must consider all the recorded details and their significance relative to each other. Often analyses of standard boring data indicate the need for additional testing or sampling procedures to more accurately evaluate the subsurface conditions. Any evaluation of the contents of this report and recovered samples must be performed by qualified professionals. The following information defines some of the procedures and terms used on the Subsurface Logs to describe the conditions encountered, consistent with the numbered identifiers shown on the Key opposite this page.

1. The figures in the Depth column define the scale of the Subsurface Log.

2. The Samples column shows, graphically, the depth range from which a sample was recovered. See Table I for descriptions of the symbols used to represent the various types of samples.

3. The Sample No. is used for identification on sample containers and/or Laboratory Test Reports.

4. Blows on Sampler - shows the results of the "Penetration Test", recording the number of blows required to drive a split spoon sampler into the soil. The number of blows required for each six inches is recorded. The first 6 inches of penetration is considered a seating drive. The number of blows required for the second and third 6 inches of penetration is termed the penetration resistance, N. The outside diameter of the sampler, hammer weight and length of drop are noted at the bottom of the Subsurface Log.

5. Blows on Casing - Shows the number of blows required to advance the casing a distance of 12 inches. The casing size, hammer weight, and length of drop are noted at the bottom of the Subsurface Log. If the casing is advanced by means other than driving, the method of advancement will be indicated in the Notes column or under the Method of Investigation at the bottom of the Subsurface Log. Alternatively, sample recovery may be shown in this column, or other data consistent with the column heading.

6. All recovered soil samples are reviewed in the laboratory by an engineering technician, geologist or geotechnical engineer, unless noted otherwise. Visual descriptions are made on the basis of a combination of the driller's field descriptions and noted observations together with the sample as received in the laboratory. The method of visual classification is based primarily on the Unified Soil Classification System (ASTM D 2487) with regard to the particle size and plasticity (See Table No. II), and the Unified Soil Classification System group symbols for the soil types are sometimes included with the soil classification. Additionally, the relative portion, by weight, of two or more soil types is described for granular soils in accordance with "Suggested Methods of Test for Identification of Soils" by D.M. Burmister, ASTM Special Technical Publication 479, June 1970. (See Table No. III). Description of the relative soil density or consistency is based upon the penetration records as defined in Table No. IV. The description of the soil moisture is based upon the relative wetness of the soil as recovered and is described as dry, moist, wet and saturated. Water introduced into the boring either naturally or during drilling may have affected the moisture condition of the recovered sample. Special terms are used as required to describe soil deposition in greater detail; several such terms are listed in Table V. When sampling gravelly soils with a standard two inch diameter split spoon, the true percentage of gravel is often not recovered due to the relatively small sampler diameter. The presence of boulders and large gravel is sometimes, but not necessarily, detected by an evaluation of the casing and sampler blows or through the "action" of the drill rig as reported by the driller.

7. Rock description is based on review of the recovered rock core and the driller's notes. Frequently used rock classification terms are included in Table VI.

8. The stratification lines represent the approximate boundary between soil types and the transition may be gradual. Solid stratification lines delineate apparent changes in soil type, based upon review of recovered soil samples and the driller's notes. Dashed lines convey a lesser degree of certainty with respect to either a change in soil type or where such change may occur.

9. Miscellaneous observations and procedures noted by the driller are shown in this column, including water level observations. It is important to realize the reliability of the water level observations depends upon the soil type (water does not readily stabilize in a hole through fine grained soils), and that any drill water used to advance the boring may have influenced the observations. The ground water level will fluctuate seasonally, typically. One or more perched or trapped water levels may exist in the ground seasonally. All the available readings should be evaluated. If definite conclusions cannot be made, it is often prudent to examine the conditions more thoroughly through test pit excavations or groundwater observation wells.

10. The length of core run is defined as the length of penetration of the core barrel. Core recovery is the length of core recovered divided by the core run. The RQD (Rock Quality Designation) is the total length of pieces of NX core exceeding 4 inches divided by the core run. The size core barrel used is also noted in the Method of Investigation at the bottom of the Subsurface Log.

ATTACHMENT B

Laboratory Test Results

SJB SERVICES, INC.

Contract Drilling and Testing

60 Miller Street, Cortland, NY 13045

PROJECT: Relocation of NYSDOT Maintenance Facility
Project Location: Ithaca, New York
EGS Project No.: BE-15-049
CLIENT: Fisher Associates

Moisture Content						
HOLE NUMBER	B-1	B-1	B-1	B-2	B-2	B-3
SAMPLE NUMBER	S-5	S-8	S-11	S-4	S-6	S-7
DEPTH bgs (feet)	8'-10'	20'-22'	35'-37'	6'-8'	10'-12'	15'-17'
W_t+TARE	323.9	389.4	369.6	369.9	308.6	404.2
W_s+TARE	247.6	316.5	285.5	285.6	223.0	335.9
W_w	76.3	72.9	84.1	84.3	85.6	68.3
TARE	97.6	108.5	107.4	98.4	111.3	108.9
W_s	150.0	208.0	178.1	187.2	111.7	227.0
w	50.9%	35.0%	47.2%	45.0%	76.6%	30.1%

Moisture Content						
HOLE NUMBER	B-3	B-3	B-3	B-3	B-3	B-3
SAMPLE NUMBER	S-8	S-10	S-15	S-19	S-21	S-23
DEPTH bgs (feet)	20'-22'	30'-32'	55'-57'	75'-77'	85'-87'	95'-97'
W_t+TARE	316.4	388.6	400.5	384.3	314.3	407.6
W_s+TARE	216.0	301.6	334.7	330.4	275.6	377.0
W_w	100.4	87.0	65.8	53.9	38.7	30.6
TARE	108.3	113.4	97.2	112.7	111.8	112.1
W_s	107.7	188.2	237.5	217.7	163.8	264.9
w	93.2%	46.2%	27.7%	24.8%	23.6%	11.6%

Technician: CH

Date: 4/1/2015

SJB SERVICES, INC.

Contract Drilling and Testing

60 Miller Street, Cortland, NY 13045

PROJECT: Relocation of NYSDOT Maintenance Facility
Project Location: Ithaca, New York
EGS Project No.: BE-15-049
CLIENT: Fisher Associates

Organic Content					
HOLE NUMBER	B-1	B-1	B-2	B-3	B-3
SAMPLE NUMBER	S-5	S-8	S-6	S-8	S-10
DEPTH bgs (feet)	8'-10'	20'-22'	10'-12'	20'-22'	30'-32'
W_t+TARE	48.3	59.8	51.0	51.9	51.7
W_s+TARE	47.3	59.3	48.5	48.3	51.1
W_w	1.0	0.5	2.5	3.6	0.6
TARE	31.5	33.0	33.0	31.5	31.5
W_s	15.8	26.3	15.5	16.8	19.6
Organic Content	6.3%	1.9%	16.1%	21.4%	3.1%

Technician: CH **Date:** 4/6/2015

Particle Size Distribution Report

% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	4.5	75.7	19.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.9		
#40	98.7		
#100	97.1		
#200	95.5		

* (no specification provided)

Soil Description

Elastic silt

Atterberg Limits

PL= 43 LL= 53 PI= 10

Coefficients

D_{85}= 0.0657 D_{60}= 0.0465 D_{50}= 0.0391
D_{30}= 0.0112 D_{15}= 0.0033 D_{10}= 0.0021
C_u= 22.28 C_c= 1.28

Classification

USCS= MH AASHTO=

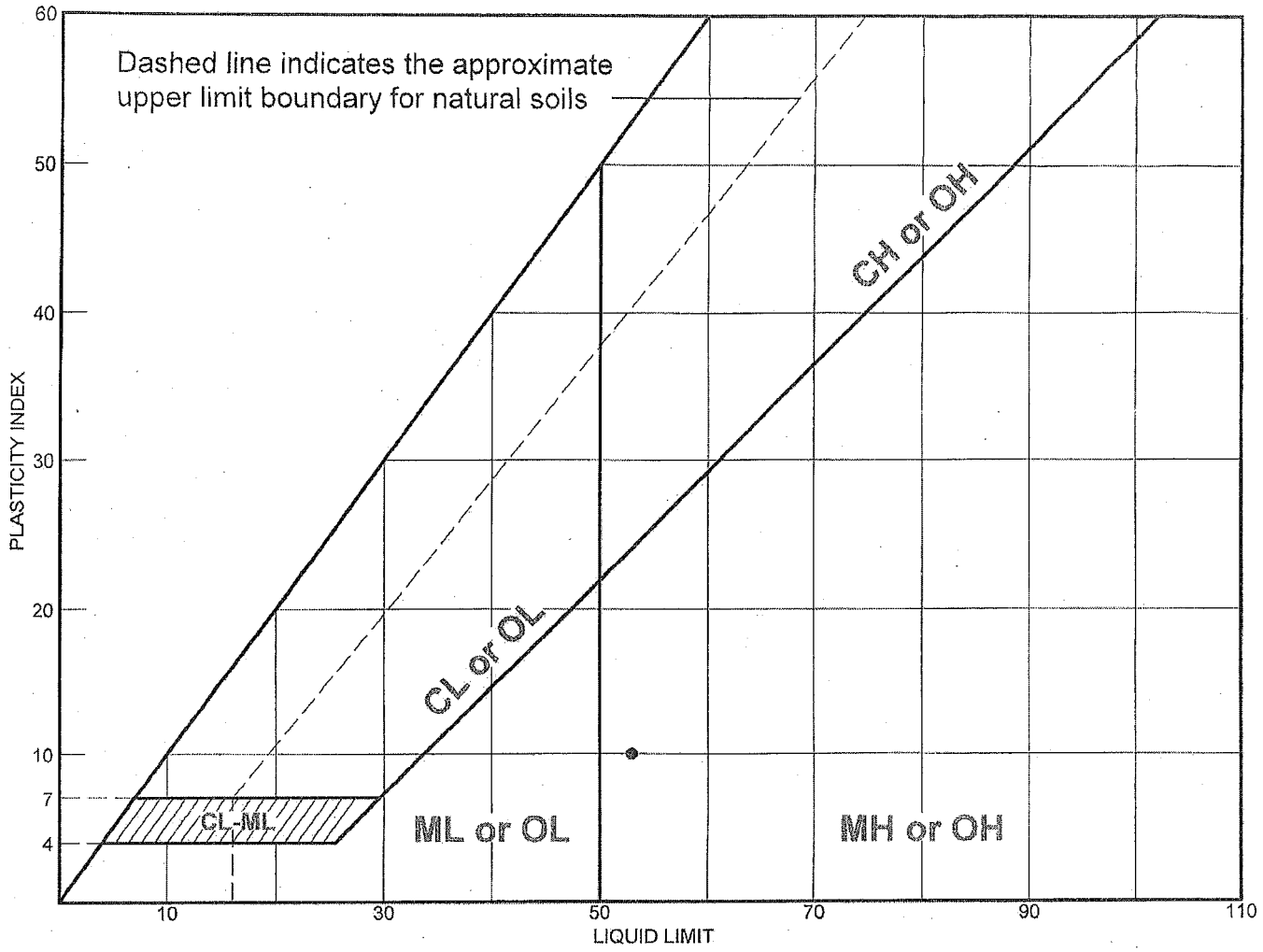
Remarks

Sample No.: 238 **Source of Sample:** **Date:** 4-10-15
Location: B-1,S-5 **Elev./Depth:** 8'-10'

SJB SERVICES, INC.

Client: Fisher Associates
Project: Relocation of NYSDOT Maintenance Facility
Project No: BE-15-049 **Plate** 238

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Elastic silt	53	43	10	98.7	95.5	MH

Project No. BE-15-049 **Client:** Fisher Associates

Project: Relocation of NYSDOT Maintenance Facility

● **Location:** B-1,S-5

Remarks:

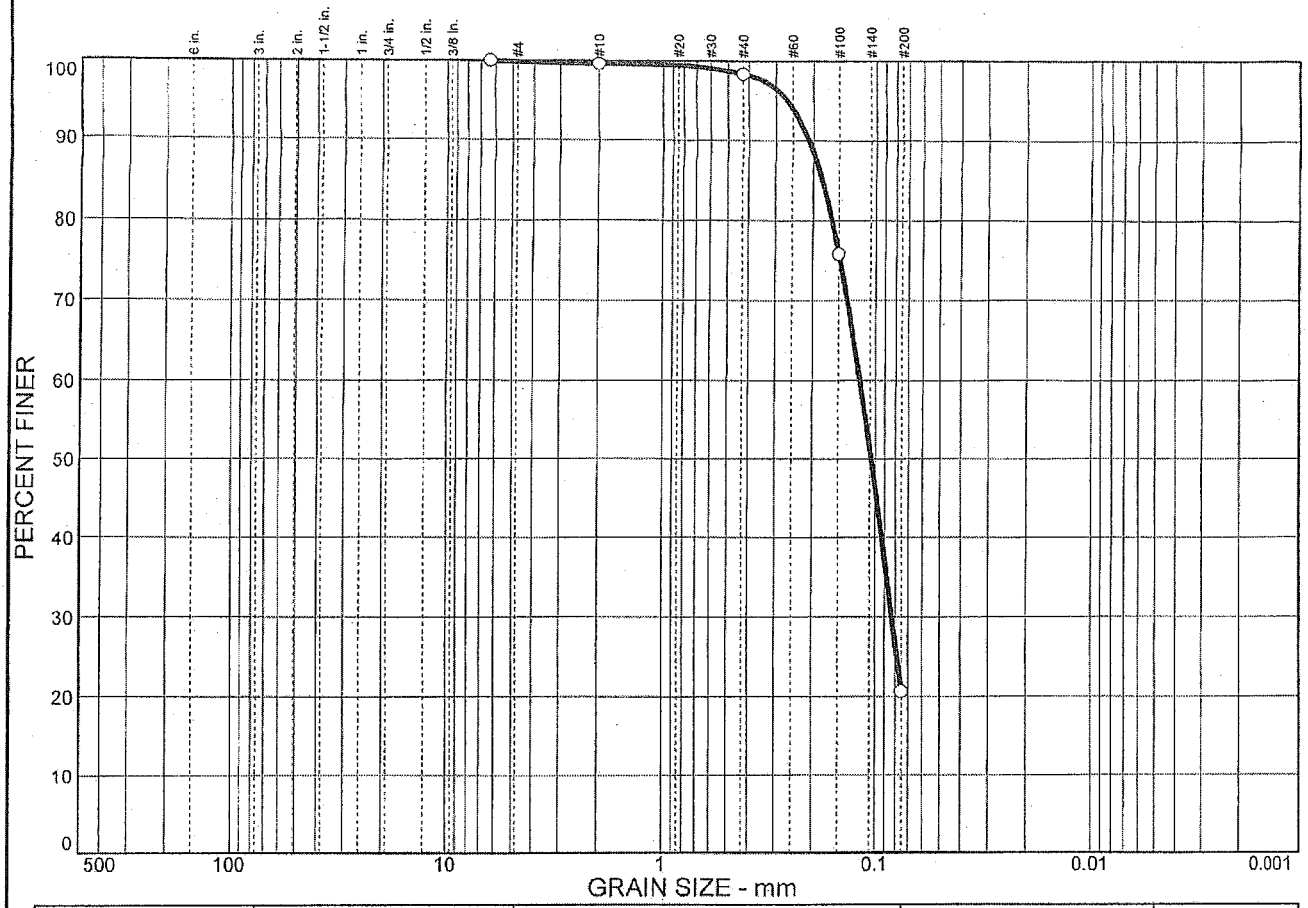
● Date Tested:4-10-15

LIQUID AND PLASTIC LIMITS TEST REPORT

SJB SERVICES, INC.

Plate 238

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.1	79.3	20.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
0.25 in.	100.0		
#10	99.6		
#40	98.3		
#100	75.9		
#200	20.6		

* (no specification provided)

Soil Description

Silty sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.181 D_{60}= 0.118 D_{50}= 0.104
D_{30}= 0.0832 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO=

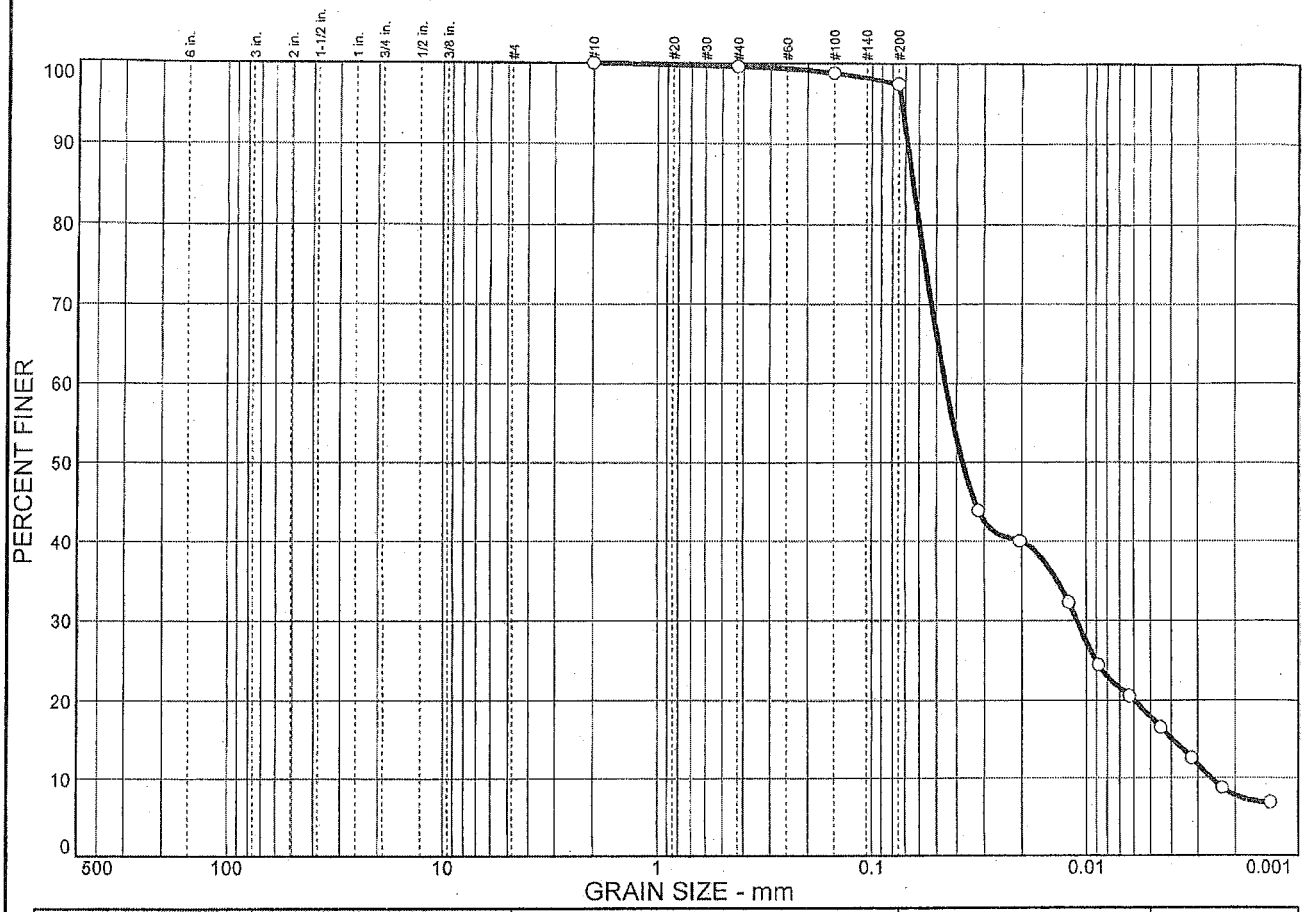
Remarks

Sample No.: 239 Source of Sample: Date: 4-6-15
Location: B-1,S-8 Elev./Depth: 20'-22'

SJB SERVICES, INC.

Client:
Project:
Project No: Plate 239

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	2.6	79.6	17.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.6		
#100	98.8		
#200	97.4		

* (no specification provided)

Soil Description

Silt

Atterberg Limits

PL= LL= 39 PI= NP

Coefficients

D_{85}= 0.0643 D_{60}= 0.0454 D_{50}= 0.0378
D_{30}= 0.0111 D_{15}= 0.0040 D_{10}= 0.0026
C_u= 17.42 C_c= 1.04

Classification

USCS= ML AASHTO=

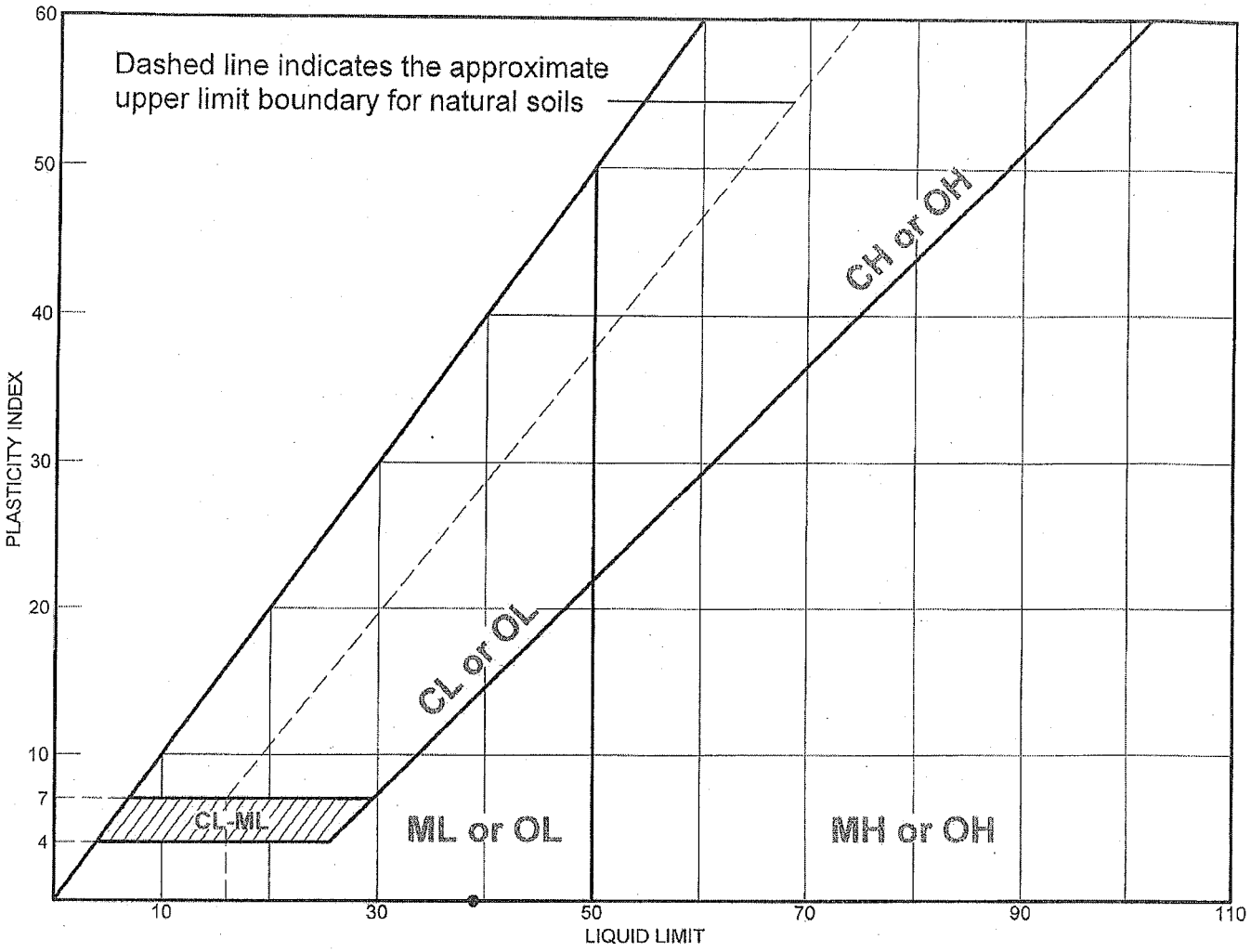
Remarks

Sample No.: 240 **Source of Sample:** **Date:** 4-10-15
Location: B-1,S-11 **Elev./Depth:** 35'-37'

SJB SERVICES, INC.

Client:
Project:
Project No: **Plate** 240

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Silt	39		NP	99.6	97.4	ML

Project No. Client:

Project:

● Location: B-1,S-11

Remarks:

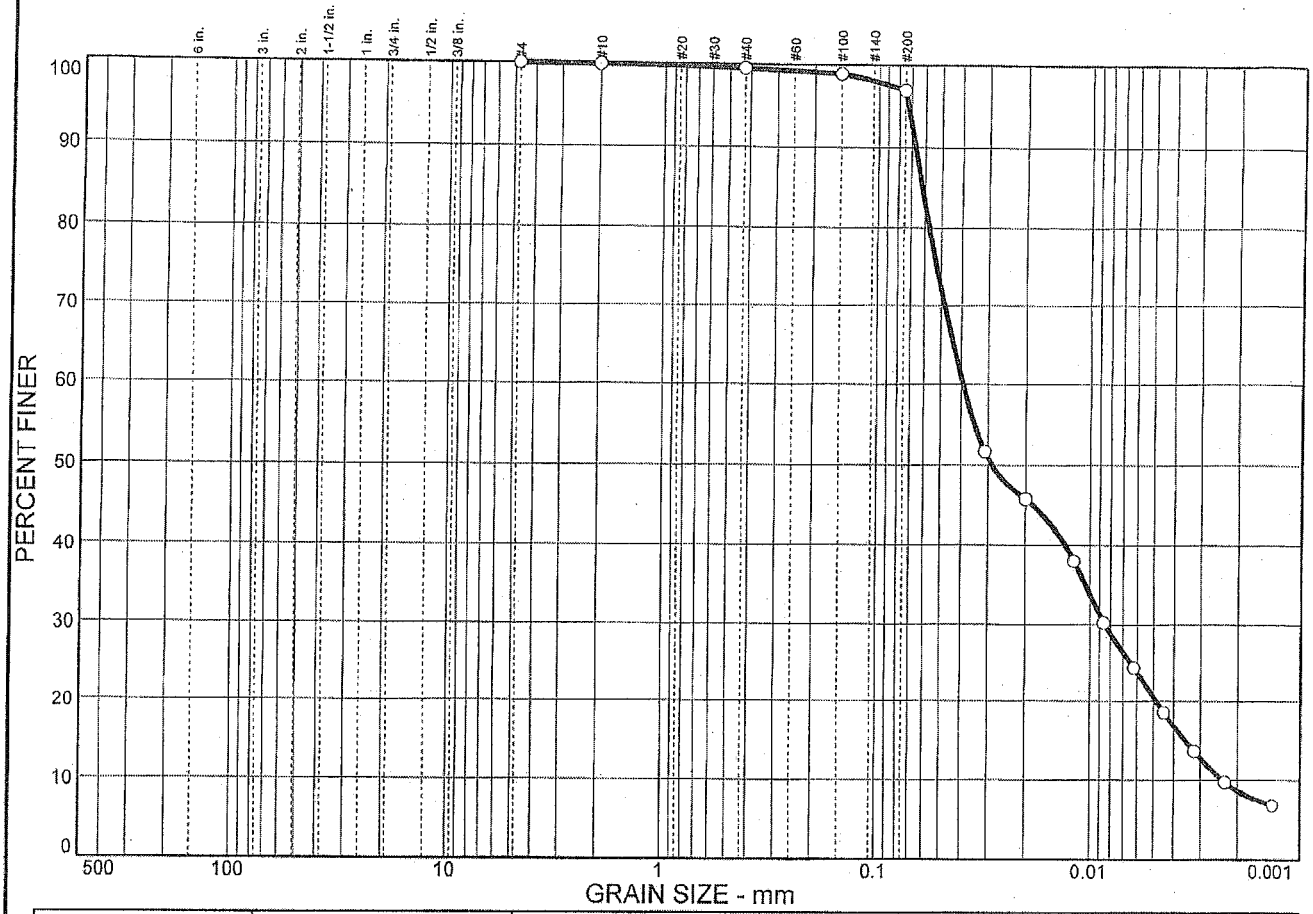
● Date Tested:4-10-15

LIQUID AND PLASTIC LIMITS TEST REPORT

SJB SERVICES, INC.

Plate 240

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	3.1	76.5	20.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.9		
#40	99.5		
#100	98.9		
#200	96.9		

* (no specification provided)

Soil Description

Silt

Atterberg Limits

PL= 32 LL= 36 PI= 4

Coefficients

D_{85}= 0.0621 D_{60}= 0.0392 D_{50}= 0.0286
D_{30}= 0.0085 D_{15}= 0.0036 D_{10}= 0.0024
C_u= 16.55 C_c= 0.78

Classification

USCS= ML AASHTO=

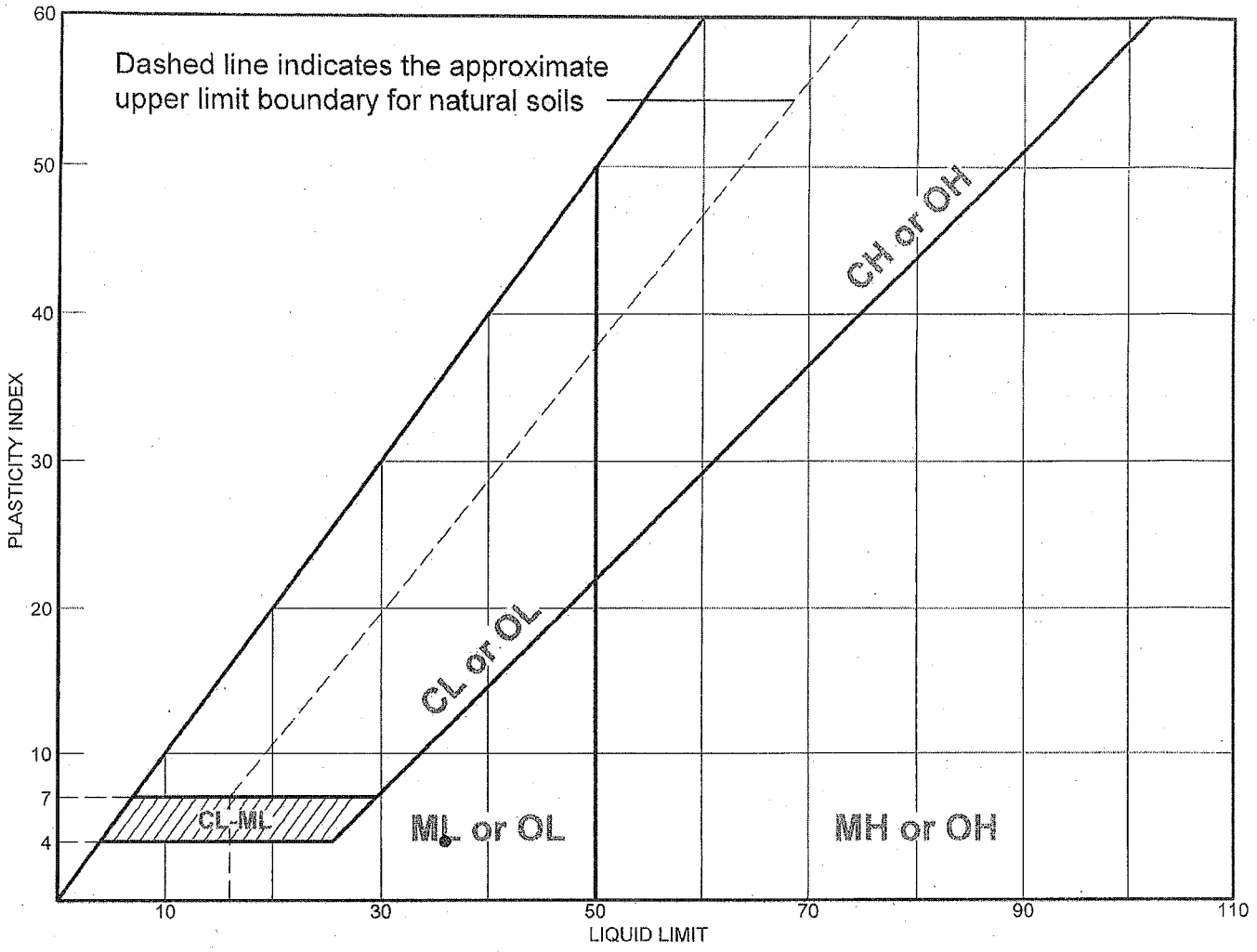
Remarks

Sample No.: 241 **Source of Sample:** **Date:** 4-10-15
Location: B-2,S-4 **Elev./Depth:** 6'-8'

SJB SERVICES, INC.

Client:
Project:
Project No: **Plate** 241

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Silt	36	32	4	99.5	96.9	ML

Project No. Client:

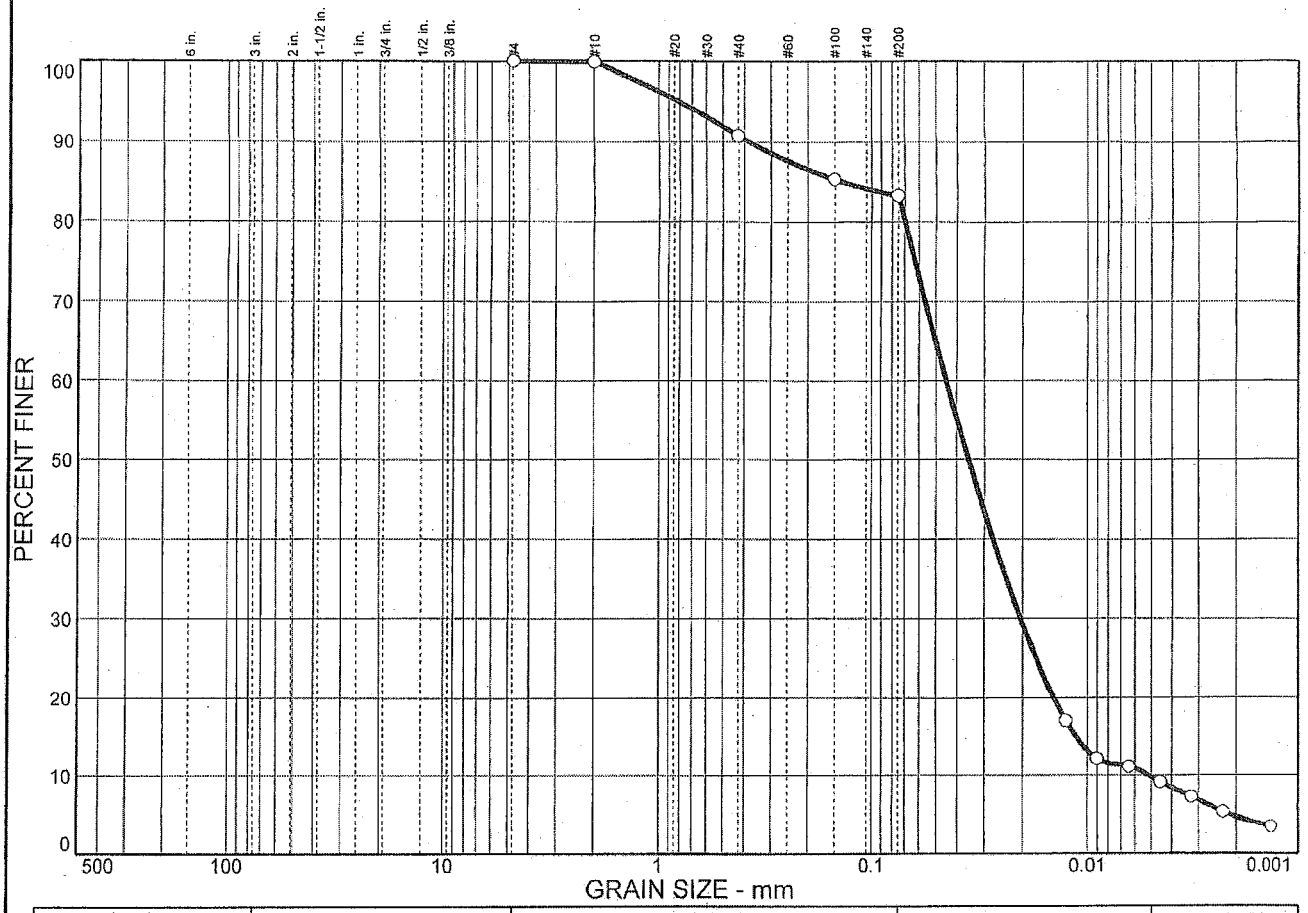
Project:

● **Location:** B-2,S-4

Remarks:

● Date Tested:4-10-15

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	16.7	73.6	9.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.9		
#40	90.7		
#100	85.3		
#200	83.3		

* (no specification provided)

Soil Description

Silt with sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.138 D_{60}= 0.0448 D_{50}= 0.0354
D_{30}= 0.0205 D_{15}= 0.0113 D_{10}= 0.0052
C_u= 8.62 C_c= 1.80

Classification

USCS= ML AASHTO=

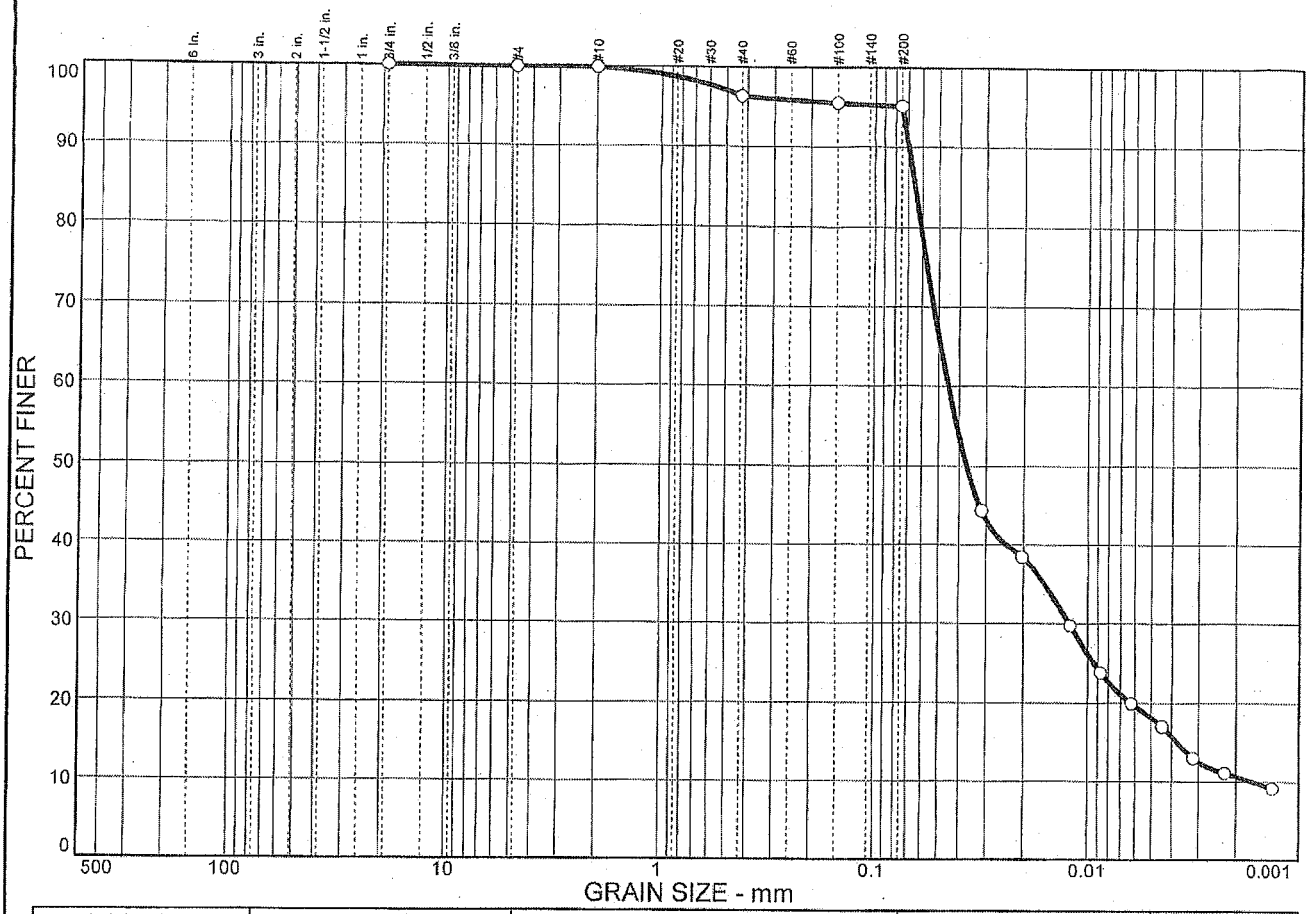
Remarks

Sample No.: 242 **Source of Sample:** **Date:** 4-10-15
Location: B-2,S-6 **Elev./Depth:** 10'-12'

SJB SERVICES, INC.

Client:
Project:
Project No: **Plate** 242

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.1	4.8	77.0	18.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
0.75 in.	100.0		
#4	99.9		
#10	99.9		
#40	96.3		
#100	95.5		
#200	95.1		

* (no specification provided)

Soil Description

Silt

Atterberg Limits

PL= 26 LL= 29 PI= 3

Coefficients

D_{85}= 0.0654 D_{60}= 0.0450 D_{50}= 0.0370
D_{30}= 0.0123 D_{15}= 0.0038 D_{10}= 0.0017
C_u= 26.90 C_c= 1.99

Classification

USCS= ML AASHTO=

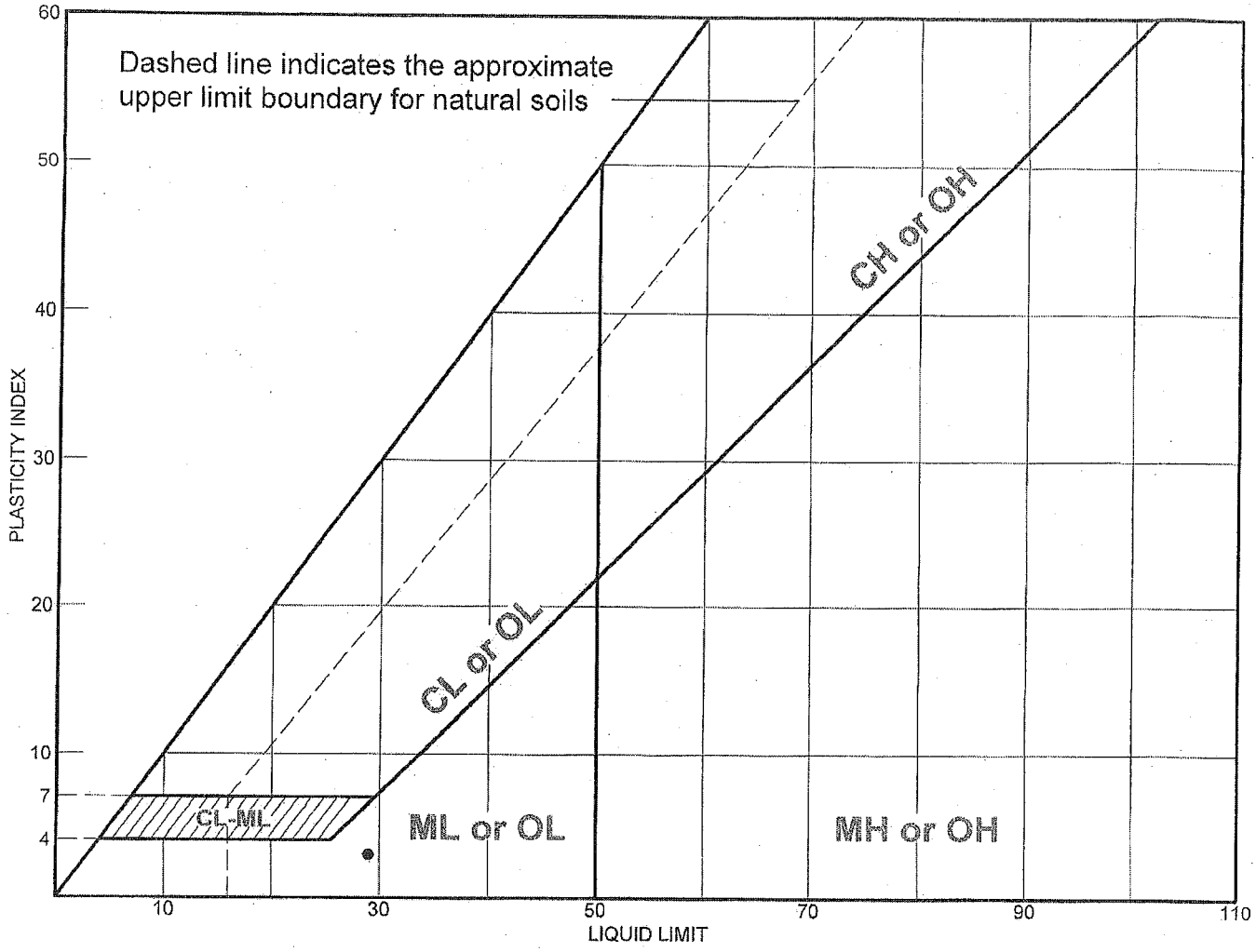
Remarks

Sample No.: 243 **Source of Sample:** **Date:** 4-14-15
Location: B-3,S-7 **Elev./Depth:** 15'-17'

SJB SERVICES, INC.

Client:
Project:
Project No: **Plate** 243

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Silt	29	26	3	96.3	95.1	ML

Project No. **Client:**

Project:

● **Location:** B-3,S-7

Remarks:

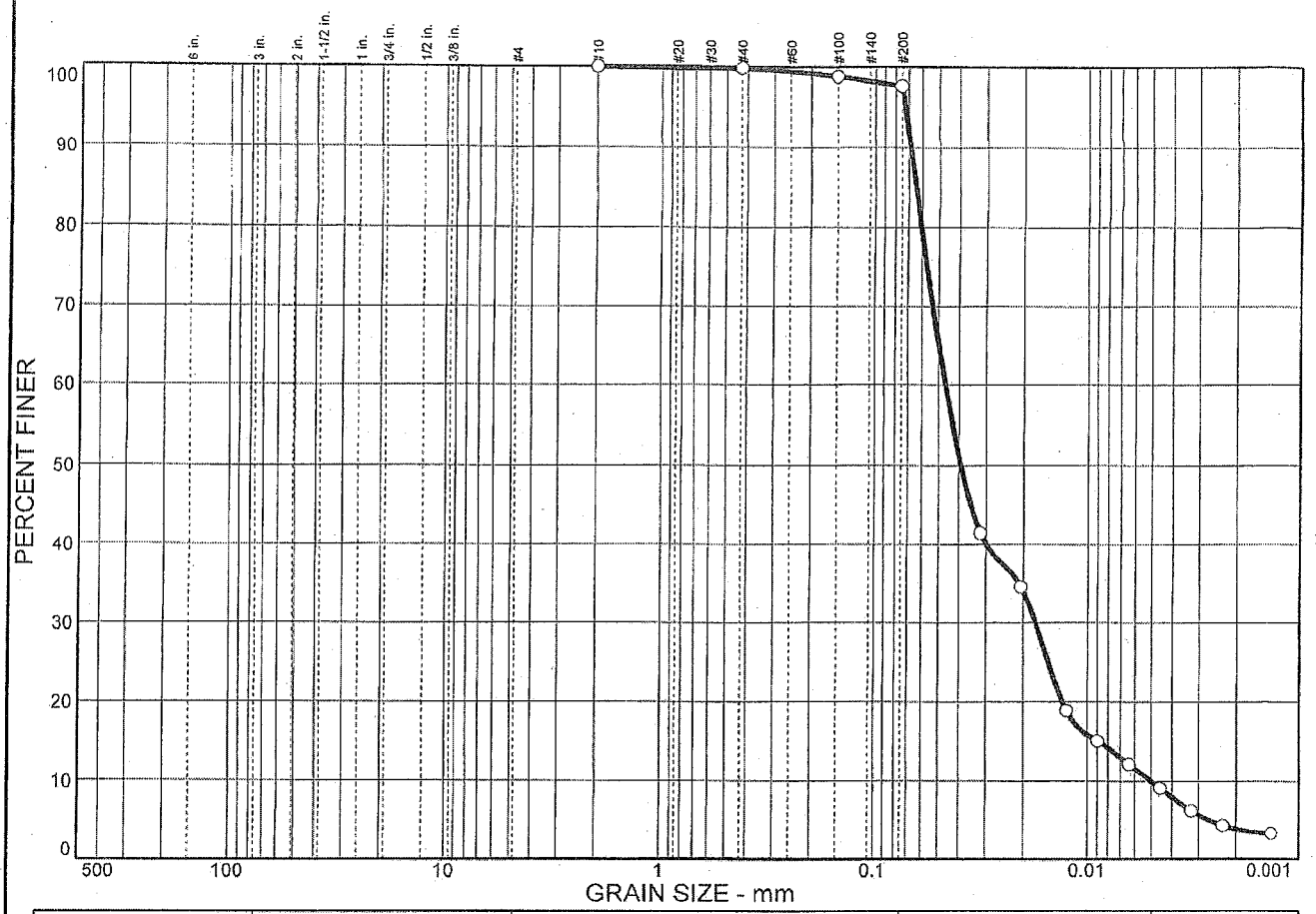
● Date Tested:4-15-15

LIQUID AND PLASTIC LIMITS TEST REPORT

SJB SERVICES, INC.

Plate 243

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	2.4	87.7	9.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.8		
#100	98.8		
#200	97.6		

* (no specification provided)

Soil Description

Silt

Atterberg Limits

PL= LL= 32 PI= NP

Coefficients

D_{85}= 0.0645 D_{60}= 0.0465 D_{50}= 0.0393
D_{30}= 0.0176 D_{15}= 0.0089 D_{10}= 0.0050
C_u= 9.24 C_c= 1.32

Classification

USCS= ML AASHTO=

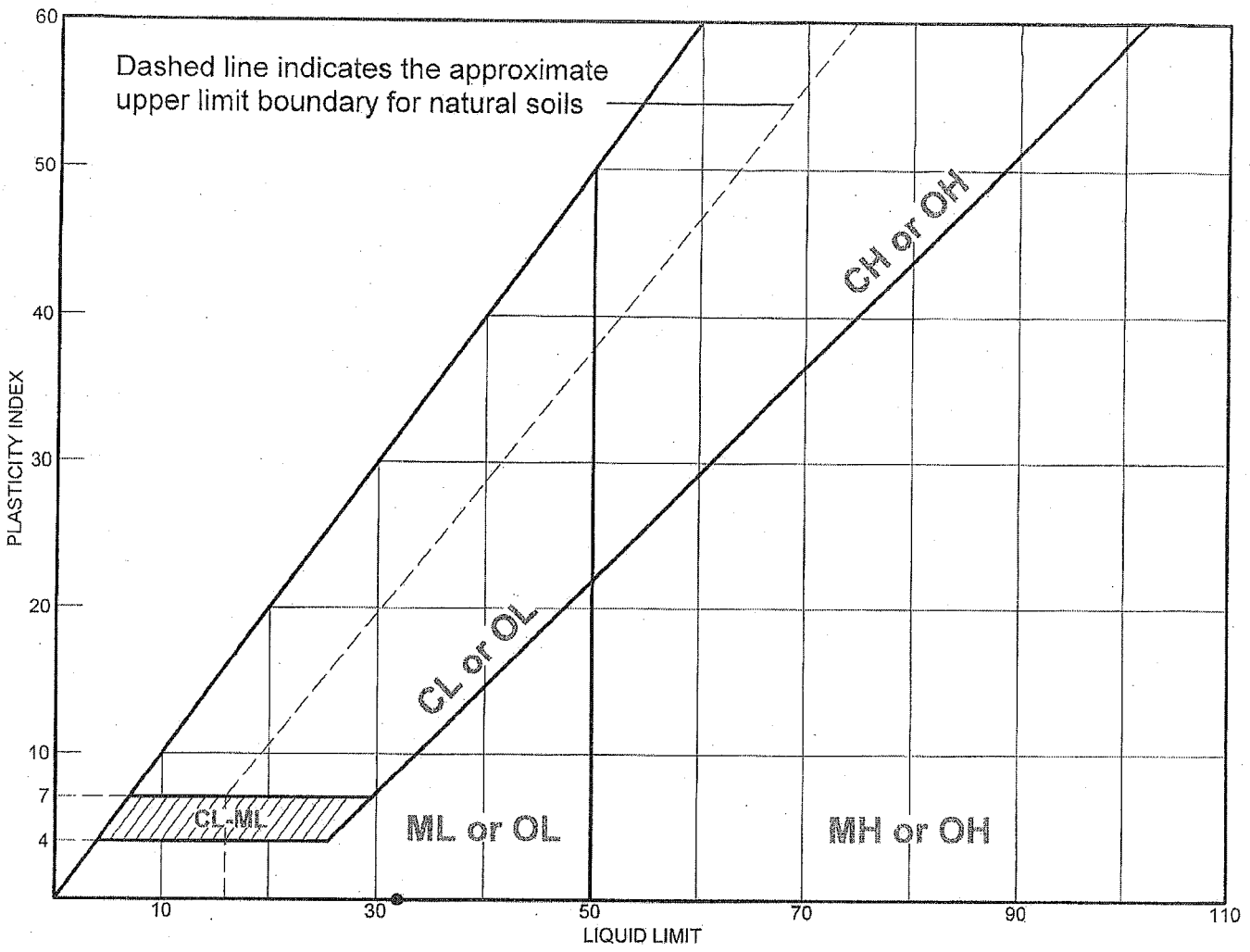
Remarks

Sample No.: 245 **Source of Sample:** **Date:** 4-15-15
Location: B-3,S-10 **Elev./Depth:** 30'-32'

SJB SERVICES, INC.

Client:
Project:
Project No: **Plate** 245

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Silt	32		NP	99.8	97.6	ML

Project No. **Client:**

Project:

● **Location:** B-3,S-10

Remarks:

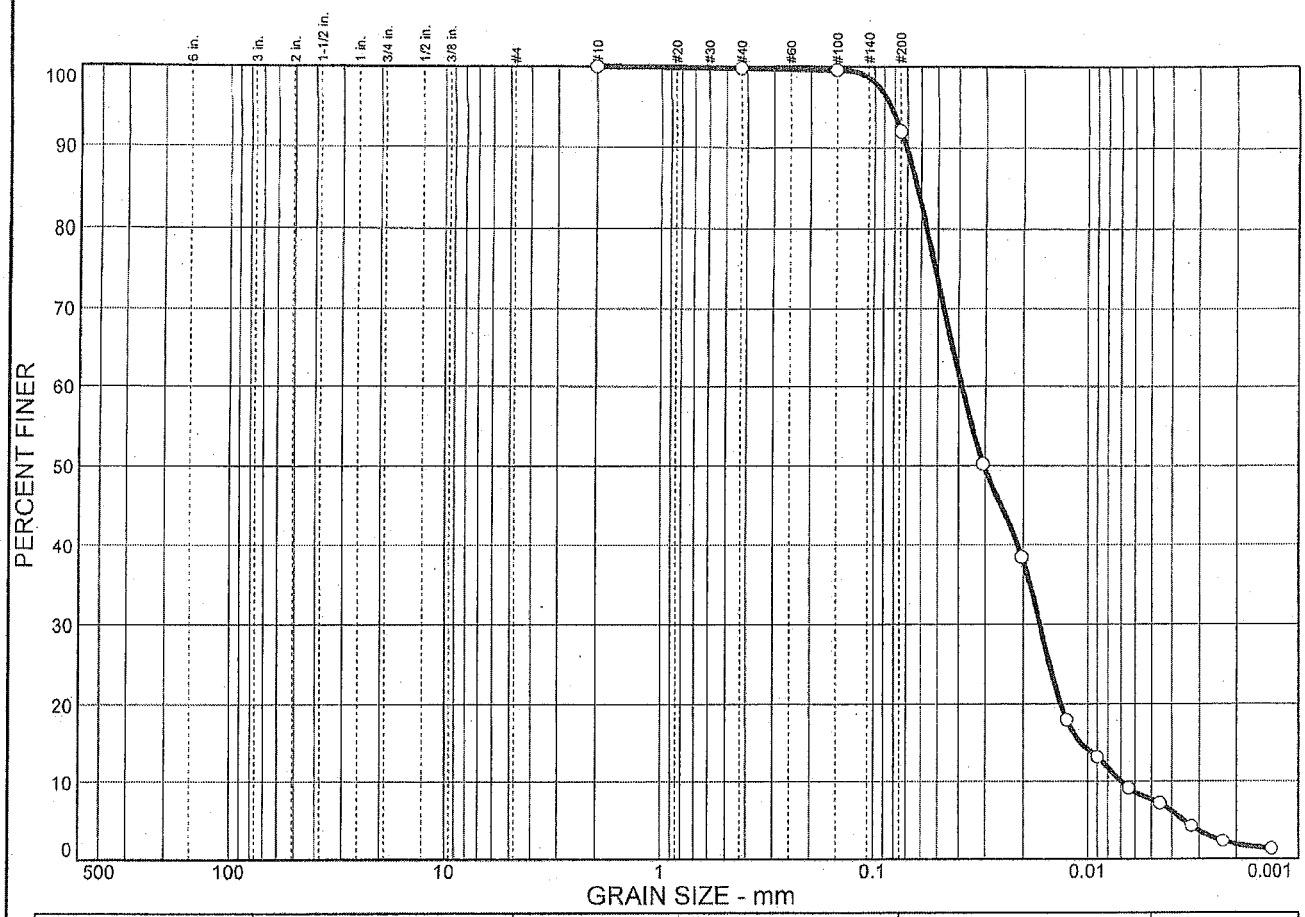
● Date Tested:4-15-15

LIQUID AND PLASTIC LIMITS TEST REPORT

SJB SERVICES, INC.

Plate 245

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	8.0	84.3	7.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.8		
#100	99.6		
#200	92.0		

* (no specification provided)

Soil Description

Silt

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.0629 D_{60}= 0.0388 D_{50}= 0.0306
D_{30}= 0.0167 D_{15}= 0.0108 D_{10}= 0.0070
C_u= 5.54 C_c= 1.03

Classification

USCS= ML AASHTO=

Remarks

Sample No.: 246 **Source of Sample:** **Date:** 4-15-15
Location: B-3,S-15 **Elev./Depth:** 55'-57'

SJB SERVICES, INC.

Client:
Project:
Project No: **Plate** 246

Particle Size Distribution Report

% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	77.3	22.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.8		
#100	87.0		
#200	22.7		

* (no specification provided)

Soil Description

Silty sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.147 D_{60}= 0.112 D_{50}= 0.101
D_{30}= 0.0811 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO=

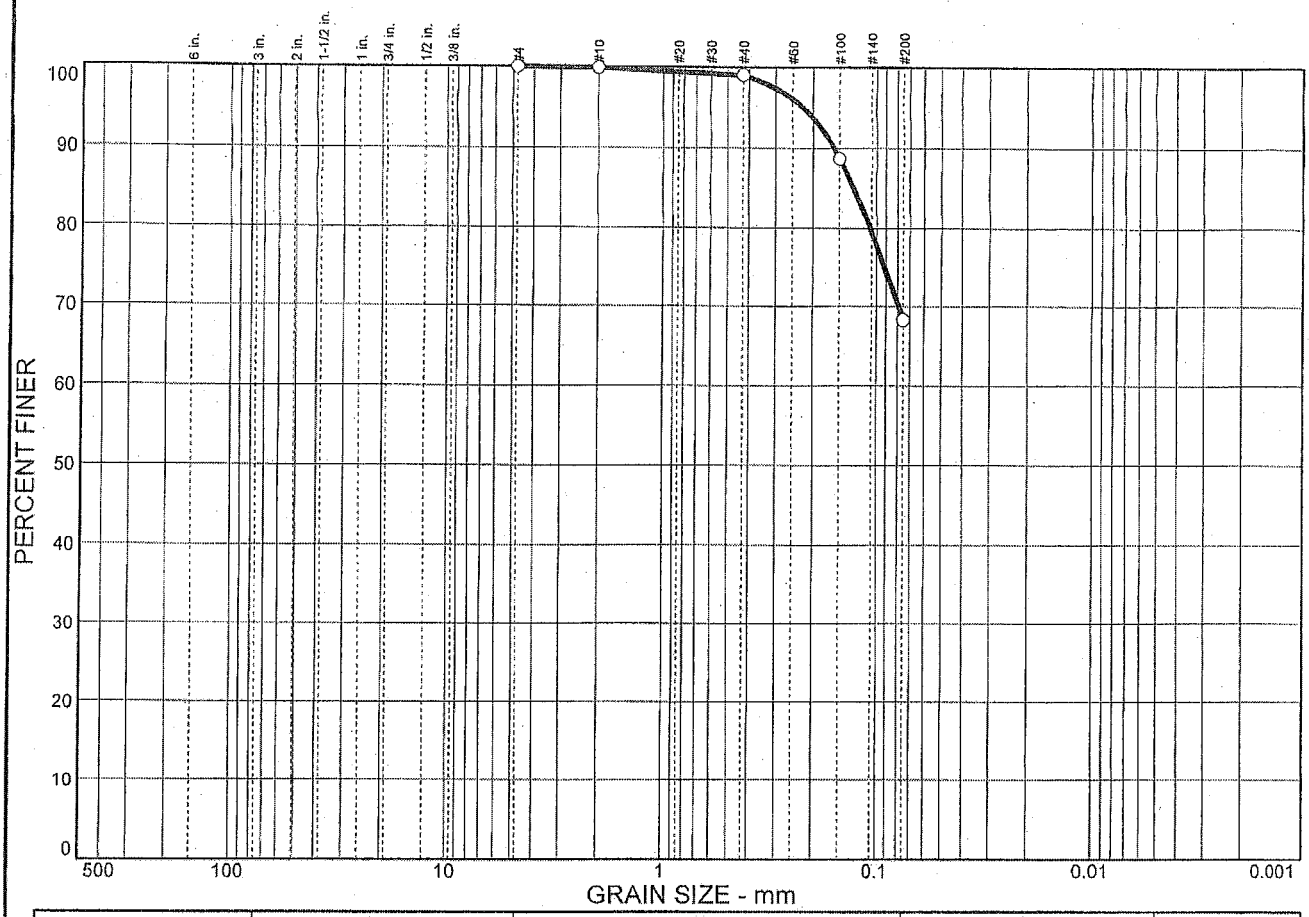
Remarks

Sample No.: 247 **Source of Sample:** **Date:** 4-6-15
Location: B-3,S-19 **Elev./Depth:** 75'-77'

SJB SERVICES, INC.

Client:
Project:
Project No: **Plate** 247

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	31.7	68.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.9		
#40	99.0		
#100	88.7		
#200	68.3		

* (no specification provided)

Soil Description

Sandy silt

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.129 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= ML AASHTO=

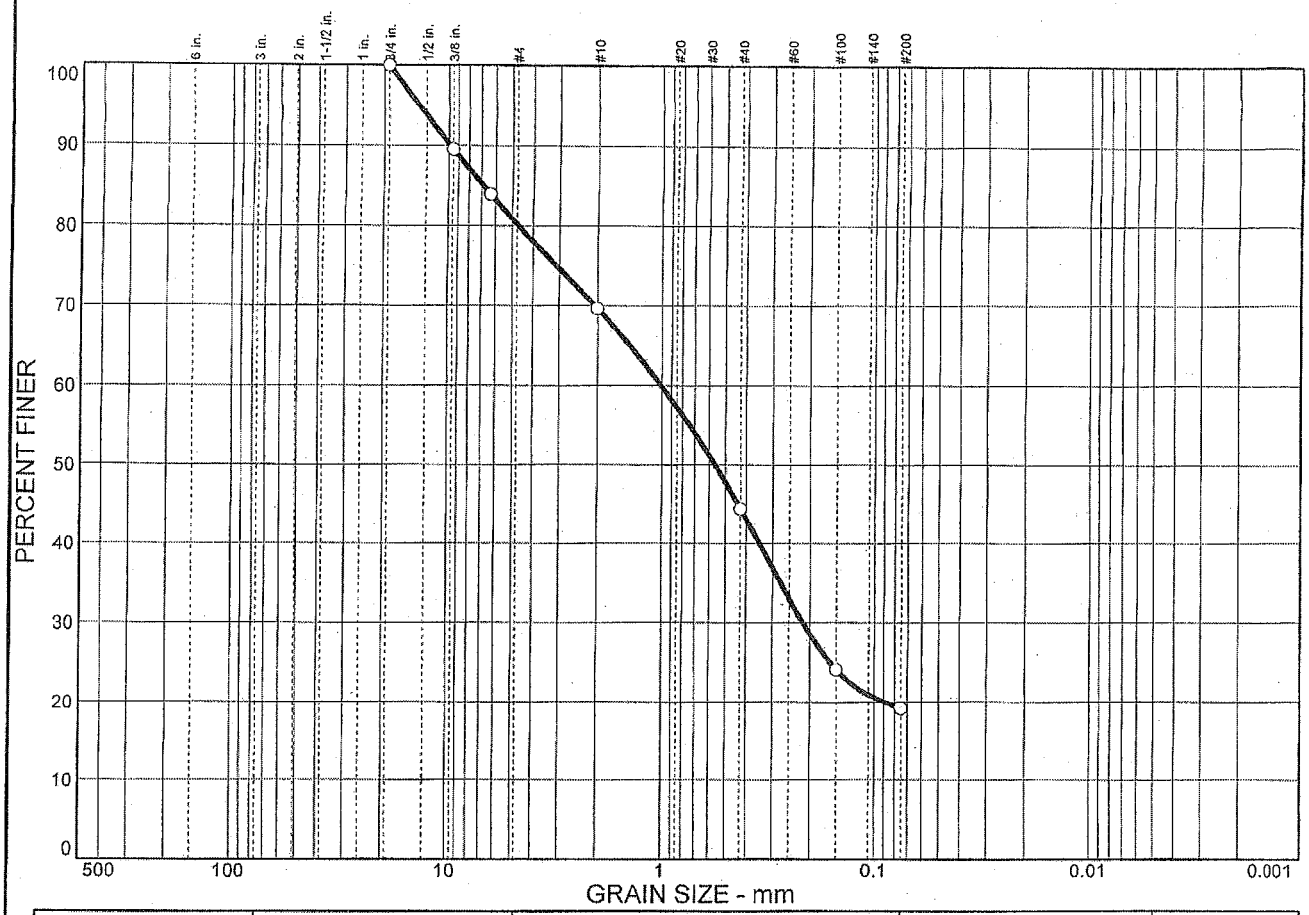
Remarks

Sample No.: 248 **Source of Sample:** **Date:** 4-6-15
Location: B-3,S-21 **Elev./Depth:** 85'-87'

SJB SERVICES, INC.

Client:
Project:
Project No: **Plate** 248

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	19.8	61.0	19.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
0.75 in.	100.0		
0.375 in.	89.5		
0.25 in.	83.9		
#10	69.6		
#40	44.4		
#100	24.1		
#200	19.2		

* (no specification provided)

Soil Description

Silty sand with gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 6.90 D_{60}= 1.01 D_{50}= 0.563
D_{30}= 0.216 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

Sample No.: 249 **Source of Sample:** **Date:** 4-6-15
Location: B-3,S-23 **Elev./Depth:** 95'-97'

SJB SERVICES, INC.

Client:
Project:
Project No: **Plate** 249

ATTACHMENT C

General Fill Material and Earthwork Recommendations

ATTACHMENT C

GENERAL FILL MATERIAL AND EARTHWORK RECOMMENDATIONS

I. Material Recommendations

A. Structural Fill

Structural Fill should consist of a crusher run stone, free of clay, organics and friable or deleterious particles. As a minimum, the crusher stone should meet the requirements of New York State Department of Transportation, Standard Specifications, Item 304.12 M - Type 2 Subbase, with the following gradation requirements.

Sieve Size Distribution	Percent Finer by Weight
2 inch	100
¼ inch	25-60
No. 40	5-40
No. 200	0-10

B. Suitable Granular Fill

Suitable soil material, classified as GW, GP, GM, SW, SP and SM soils using the Unified Soil Classification System (ASTM D-2487) and having no more than 85- percent material by weight passing the No. 40 sieve, no more than 20- percent material by weight passing the No. 200 sieve and which is generally free of particles greater than 6 inches, will be acceptable as Suitable Granular Fill. It should also be free of topsoil, asphalt, concrete rubble, wood, debris, clay and other deleterious materials. Suitable Granular Fill should be used as foundation backfill.

II. Placement and Compaction Requirements

All controlled fill placed beneath foundations, and as foundation backfill should be compacted to a minimum of 95 percent of the maximum dry density as measured by the modified Proctor test (ASTM D1557). Placement of fill should not exceed a maximum loose lift thickness of 6 to 9 inches and should be reduced in conjunction with the compaction equipment used so that the required density is attained.

Fill should have a moisture content within two percent of the optimum moisture content prior to compaction. Subgrades should be properly drained and protected from moisture and frost. Placement of fill on frozen subgrades is not acceptable. It is recommended that all fill placement and compaction be monitored and tested by a representative of Empire Geo-Services, Inc.

III. Quality Assurance Testing

The following minimum laboratory and field quality assurance testing frequencies are recommended to confirm fill material quality and post placement and compaction conditions. These minimum frequencies are based on generally uniform material properties and placement conditions. Should material properties vary or conditions at the time of placement vary (i.e. moisture content, placement and compaction, procedures or equipment, etc.) Then additional testing is recommended. Additional testing, which may be necessary, should be determined by qualified geotechnical personnel, based on evaluation of the actual fill material and construction conditions.

A. Laboratory Testing of Material Properties

- Moisture content (ASTM D-2216) - 1 test per 4000 cubic yards or no less than 2 tests per each material type.
- Grain Size Analysis (ASTM D-422) - 1 test per 4000 cubic yards or no less than 2 tests per each material type.
- Liquid and Plastic Limits (ASTM D-4318) 1 test per 4000 cubic yards or no less than 2 tests per each material type. Liquid and Plastic Limit testing is necessary only if appropriate, based on material composition (i.e. clayey or silty soils).
- Modified Proctor Moisture Density Relationship (ASTM D-1557) 1 test per 4000 cubic yards or no less than 1 test per each material type. A maximum/minimum density relationship (ASTM D-4253 and ASTM D-4254) may be an appropriate substitute for ASTM D-1557 depending on material gradation.

B. Field In-Place Moisture/Density Testing (ASTM D-3017 and ASTM D-2922)

- Backfilling along trenches and foundation walls - 1 test per 50 lineal feet per lift.
- Backfilling Isolated Excavations (i.e. column foundations, manholes, etc.) - 1 test per lift.

ATTACHMENT D

Information Regarding Geotechnical Report

GEOTECHNICAL REPORT LIMITATIONS

Empire Geo-Services, Inc. (Empire) has endeavored to meet the generally accepted standard of care for the services completed, and in doing so is obliged to advise the geotechnical report user of our report limitations. Empire believes that providing information about the report preparation and limitations is essential to help the user reduce geotechnical-related delays, cost over-runs, and other problems that can develop during the design and construction process. Empire would be pleased to answer any questions regarding the following limitations and use of our report to assist the user in assessing risks and planning for site development and construction.

PROJECT SPECIFIC FACTORS: The conclusions and recommendations provided in our geotechnical report were prepared based on available project specific factors described in the report, such as size, loading, and intended use of structures; general configuration of structures, roadways, and parking lots; existing and proposed site grading; or any other pertinent project information. Changes to the project details may alter the factors considered in development of the report conclusions and recommendations. *Accordingly, Empire cannot accept responsibility for problems which may develop if we are not consulted regarding any changes to the project specific factors that were assumed during the report preparation.*

SUBSURFACE CONDITIONS: The site exploration investigated subsurface conditions only at discrete test locations. Empire has used judgment to infer subsurface conditions between the discrete test locations, and on this basis the conclusions and recommendations in our geotechnical report were developed. It should be understood that the overall subsurface conditions inferred by Empire may vary from those revealed during construction, and these variations may impact on the assumptions made in developing the report conclusions and recommendations. *For this reason, Empire should be retained during construction to confirm that conditions are as expected, and to refine our conclusions and recommendations in the event that conditions are encountered that were not disclosed during the site exploration program.*

USE OF GEOTECHNICAL REPORT: Unless indicated otherwise, our geotechnical report has been prepared for the use of our client for specific application to the site and project conditions described in the report. *Without consulting with Empire, our geotechnical report should not be applied by any party to other sites or for any uses other than those originally intended.*

CHANGES IN SITE CONDITIONS: Surface and subsurface conditions are subject to change at a project site subsequent to preparation of the geotechnical report. Changes may include, but are not limited to, floods, earthquakes, groundwater fluctuations, and construction activities at the site and/or adjoining properties. *Empire should be informed of any such changes to determine if additional investigative and/or evaluation work is warranted.*

MISINTERPRETATION OF REPORT: The conclusions and recommendations contained in our geotechnical report are subject to misinterpretation. *To limit this possibility, Empire should review project plans and specifications relative to geotechnical issues to confirm that the recommendations contained in our report have been properly interpreted and applied.*

Subsurface exploration logs and other report data are also subject to misinterpretation by others if they are separated from the geotechnical report. This often occurs when copies of logs are given to contractors during the bid preparation process. *To minimize the potential for misinterpretation, the subsurface logs should not be separated from our geotechnical report and the use of excerpted or incomplete portions of the report should be avoided.*

OTHER LIMITATIONS: Geotechnical engineering is less exact than other design disciplines, as it is based partly on judgment and opinion. For this reason, our geotechnical report may include clauses that identify the limits of Empire's responsibility, or that may describe other limitations specific to a project. These clauses are intended to help all parties recognize their responsibilities and to assist them in assessing risks and decision making. Empire would be pleased to discuss these clauses and to answer any questions that may arise.

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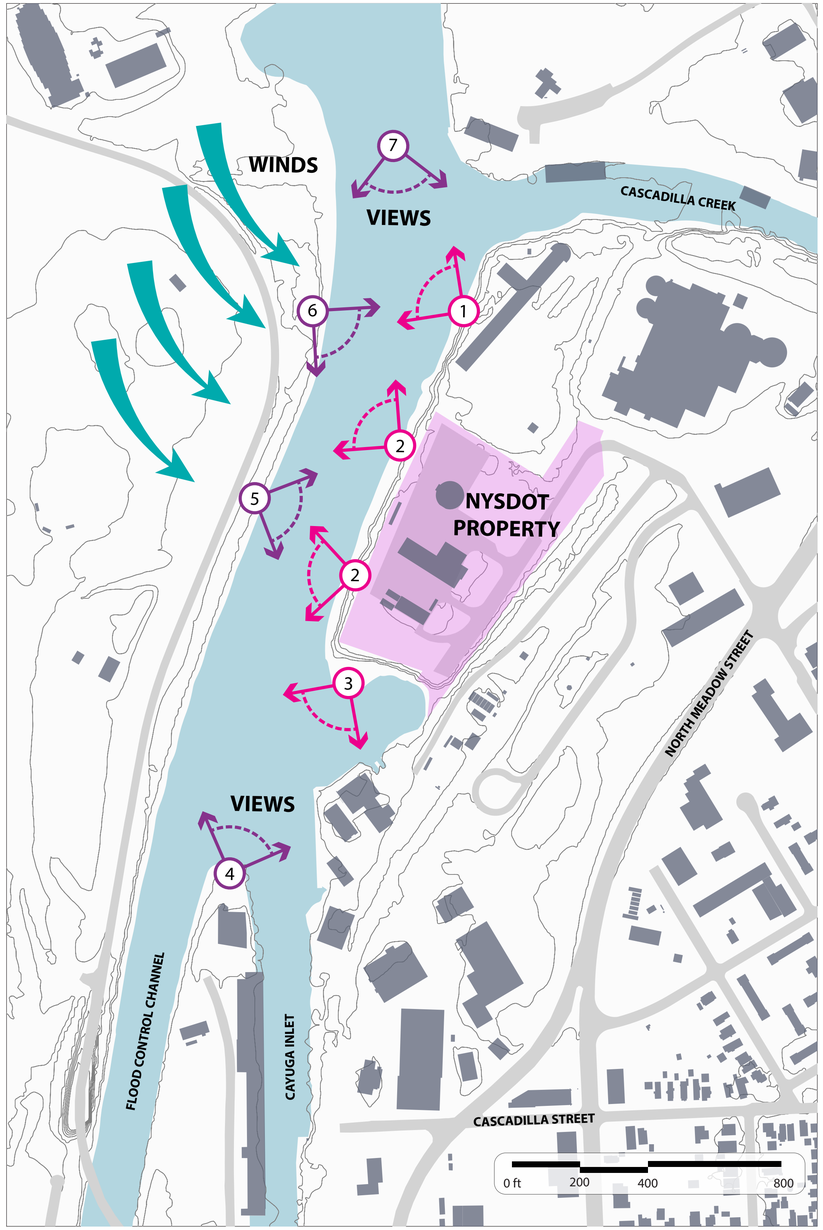
Appendix 4:
Site Analysis Diagrams

NATURAL FEATURES



VIEWS:

1. VIEWS NORTHWEST TOWARDS CAYUGA LAKE AND INLET
2. VIEWS WEST TOWARDS OPEN SPACE (CASS PARK)
3. VIEWS SOUTHWEST TOWARDS BOAT HOUSES, LOOKOUT POINT, & INLET
4. VIEWS NORTHEAST TOWARDS SOUTH END OF NYSDOT PROPERTY, INLET, CASS PARK, & BOAT HOUSES
5. VIEWS EAST TOWARDS WATER FRONTAGE OF NYSDOT PROPERTY
6. VIEWS EAST TOWARDS WATER FRONTAGE OF NYSDOT PROPERTY & FARMERS' MARKET
7. VIEWS SOUTH DOWN INLET TOWARDS NYSDOT PROPERTY & FARMERS' MARKET

PEDESTRIAN CIRCULATION

DESIGN TEAM
FISHERASSOCIATES · IBI BCK · TROWBRIDGE WOLF MICHAELS LANDSCAPE ARCHITECTS TWLA · HR&A Analyze. Advise. Act.

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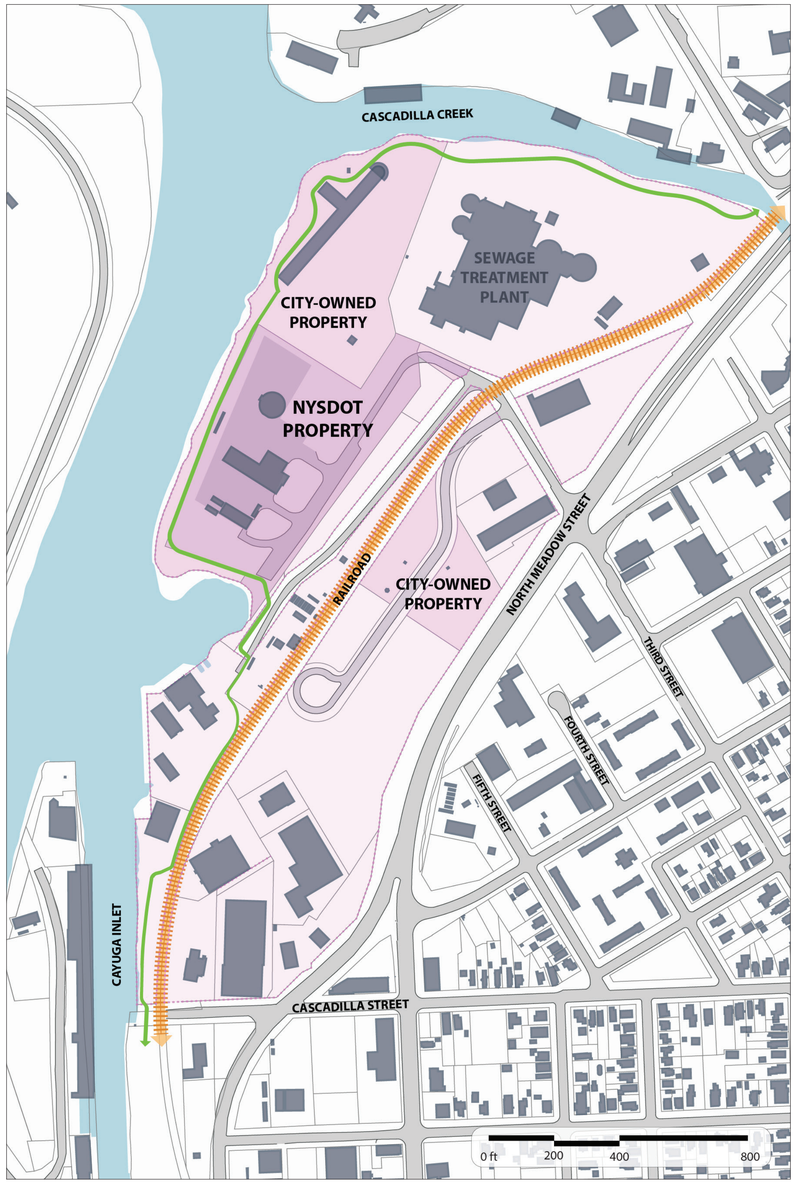
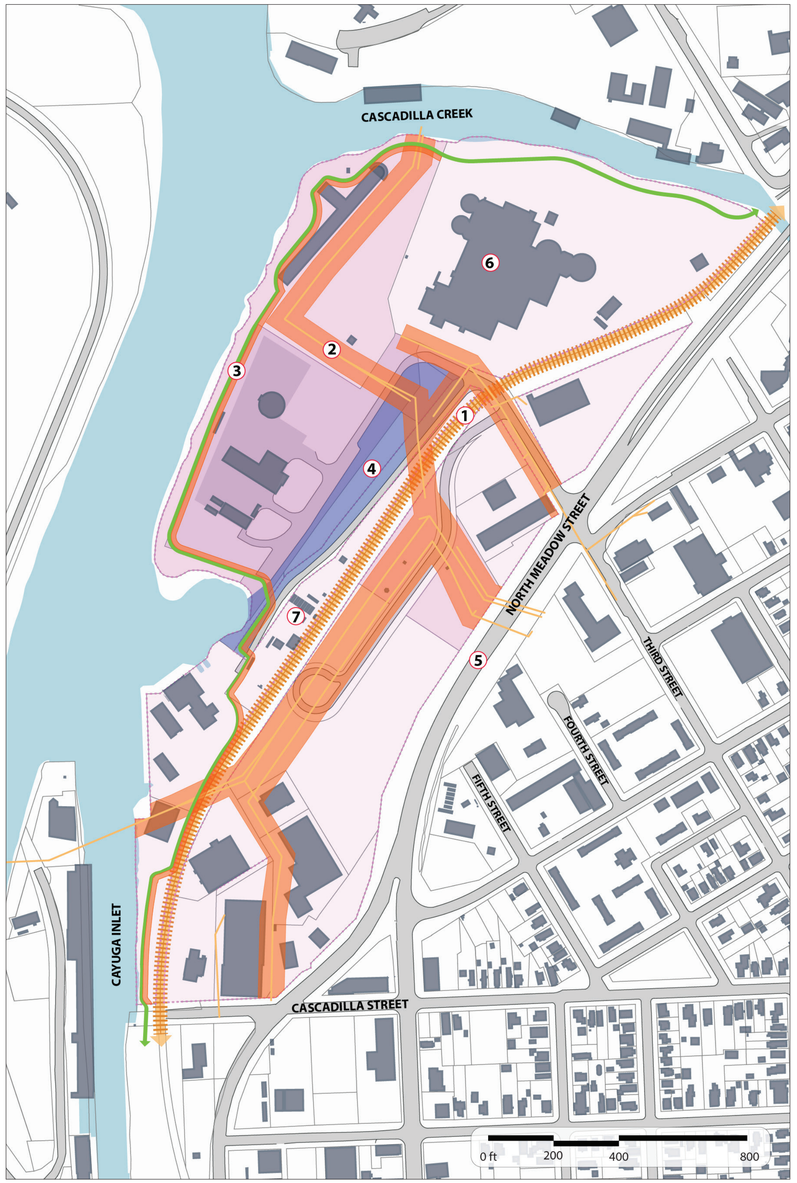
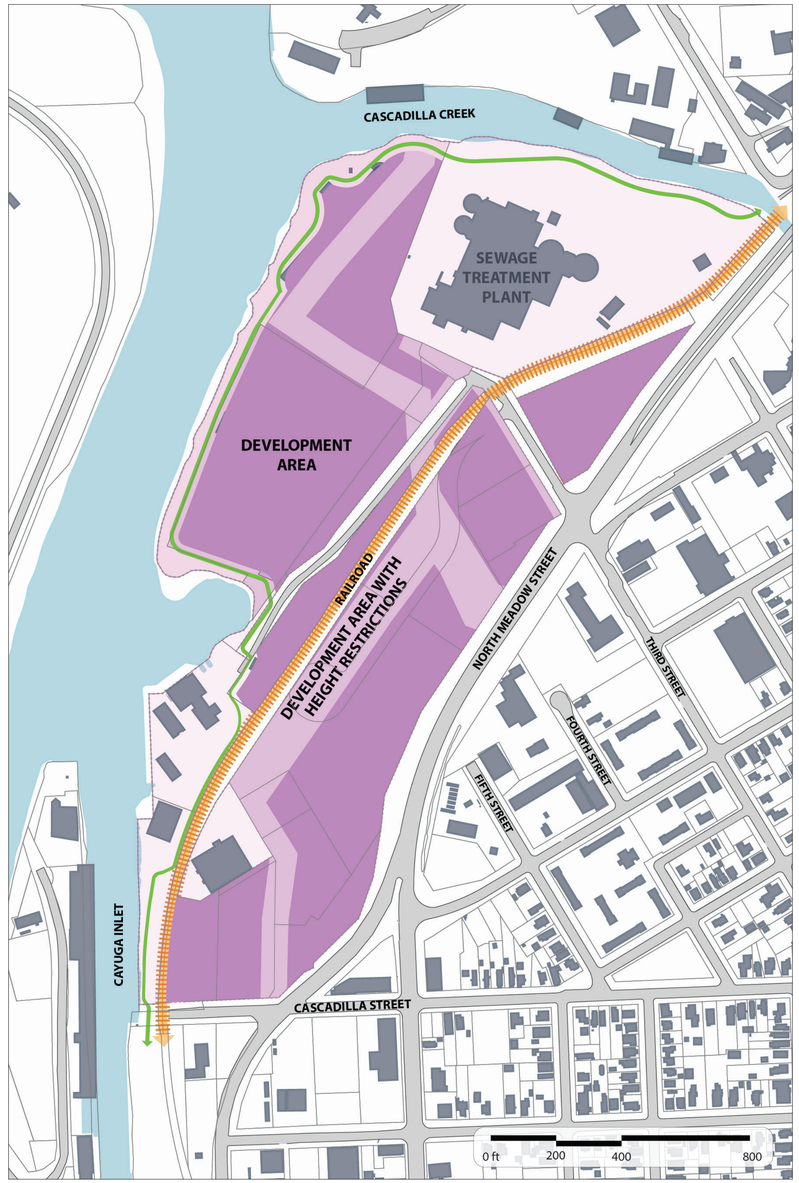
PROJECT AREA



ISSUES & CONTRAINTS DIAGRAM



DEVELOPMENT OPPORTUNITIES DIAGRAM



KEY:

1. RAILROAD TRACK
2. OVERHEAD POWER LINES & SETBACK REQUIREMENTS - BUILDING HEIGHT RESTRICTIONS
3. CAYUGA WATERFRONT TRAIL - 15' SETBACK REQUIREMENT
4. DRAINAGE WAY
5. ARTERIAL ROADWAY
6. SEWAGE TREATMENT PLANT
7. ANDREE PETROLEUM

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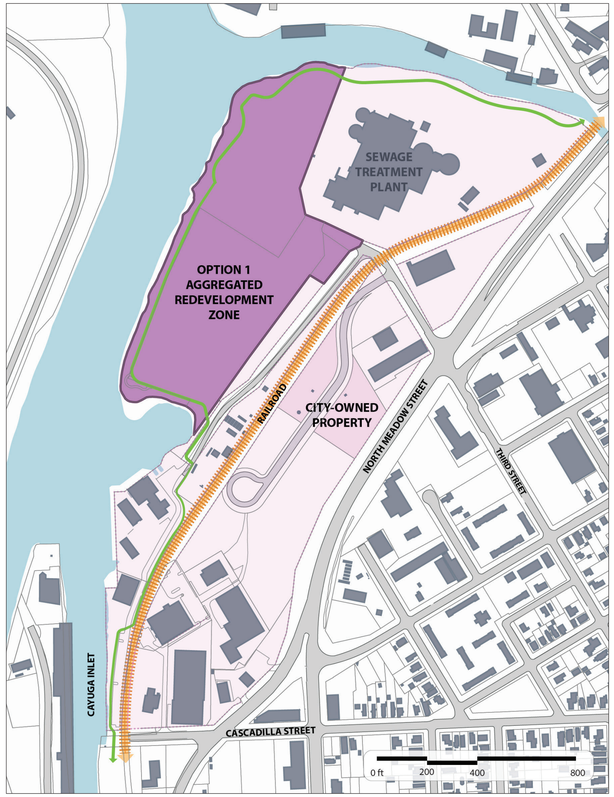
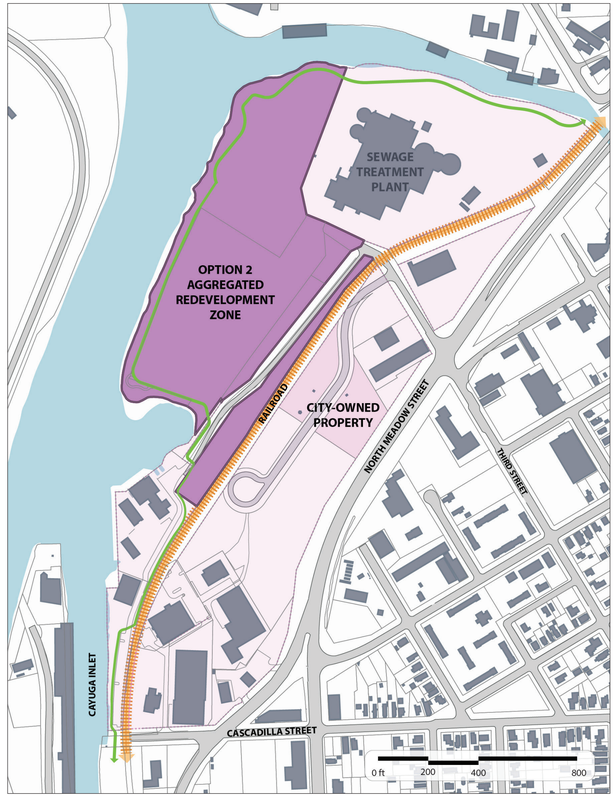
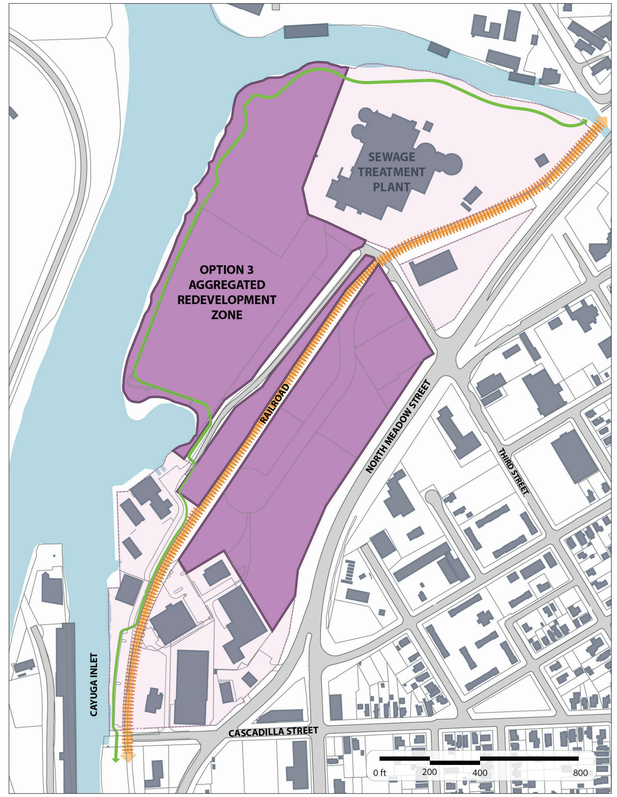
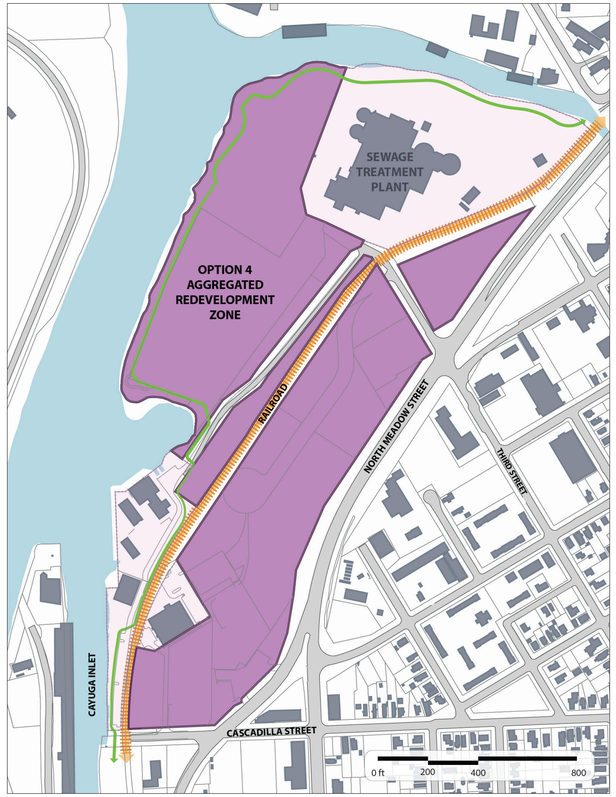
AGGREGATED PARCELS REDEVELOPMENT OPPORTUNITIES DIAGRAMS

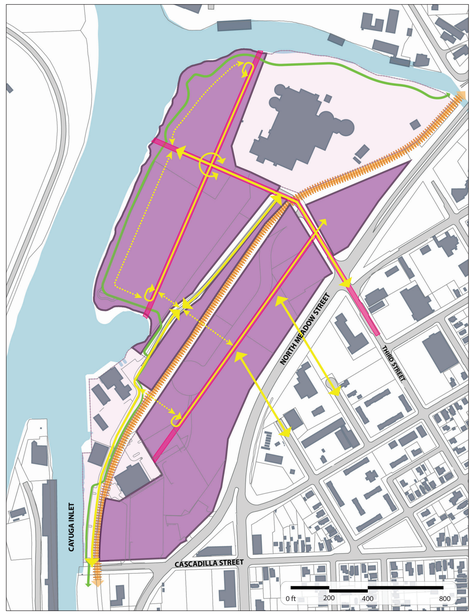








CIRCULATION STUDY DIAGRAM



TOMPKINS COUNTY

NYS DOT Facility Relocation Study

April 2015

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DESIGN TEAM

FISHERASSOCIATES

BCK | IBI

TROWBRIDGE WOLF MICHAELS LANDSCAPE ARCHITECTS

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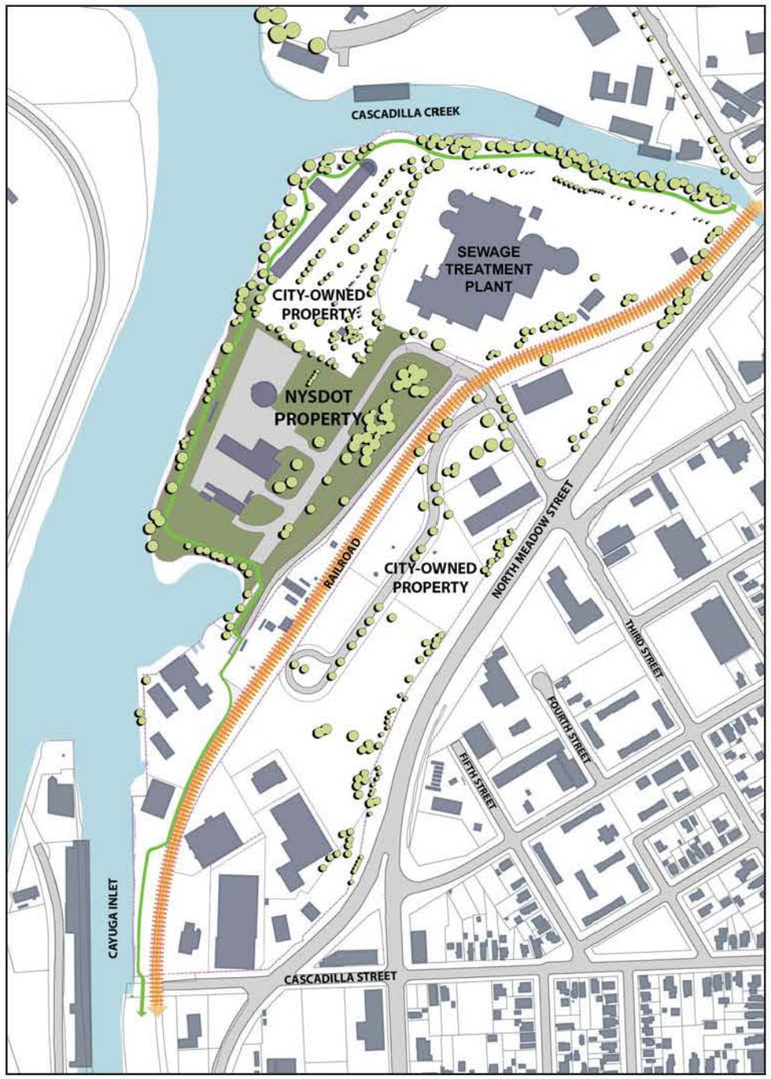
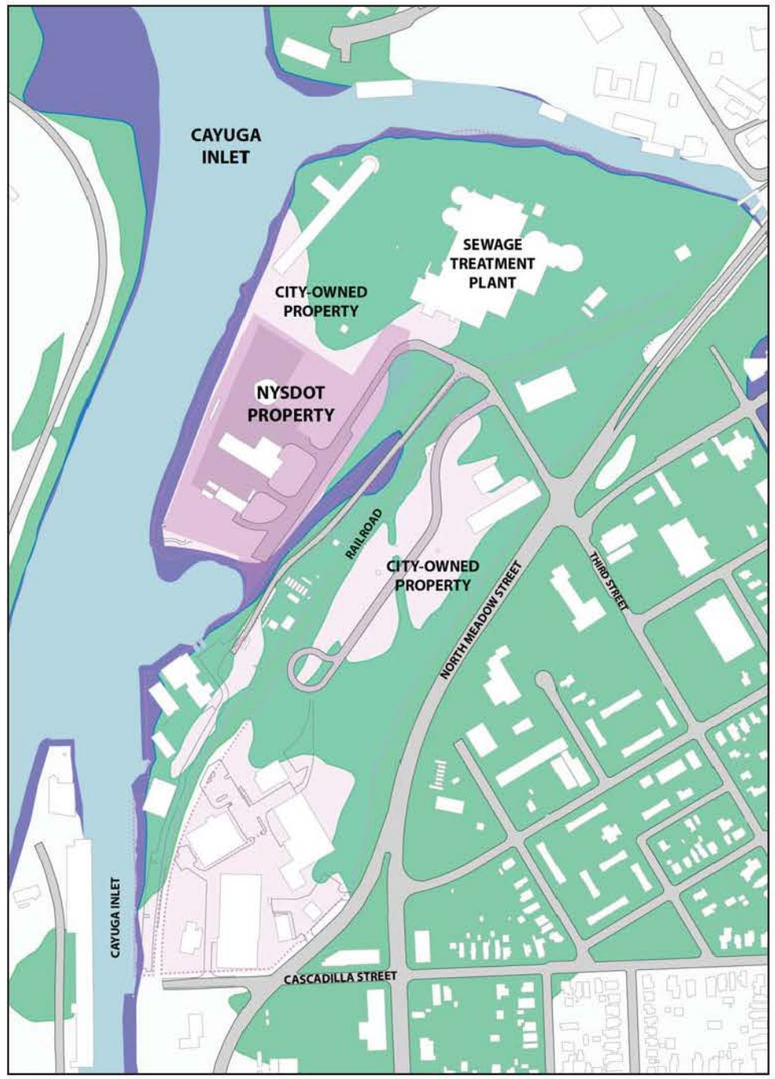
EXISTING VEGETATION



Legend

- Existing Vegetation
- Existing Lawn Area

FLOODPLAIN MAP



KEY

- Cayuga Inlet
- 100 Year Flood Zone
- 500 Year Flood Zone

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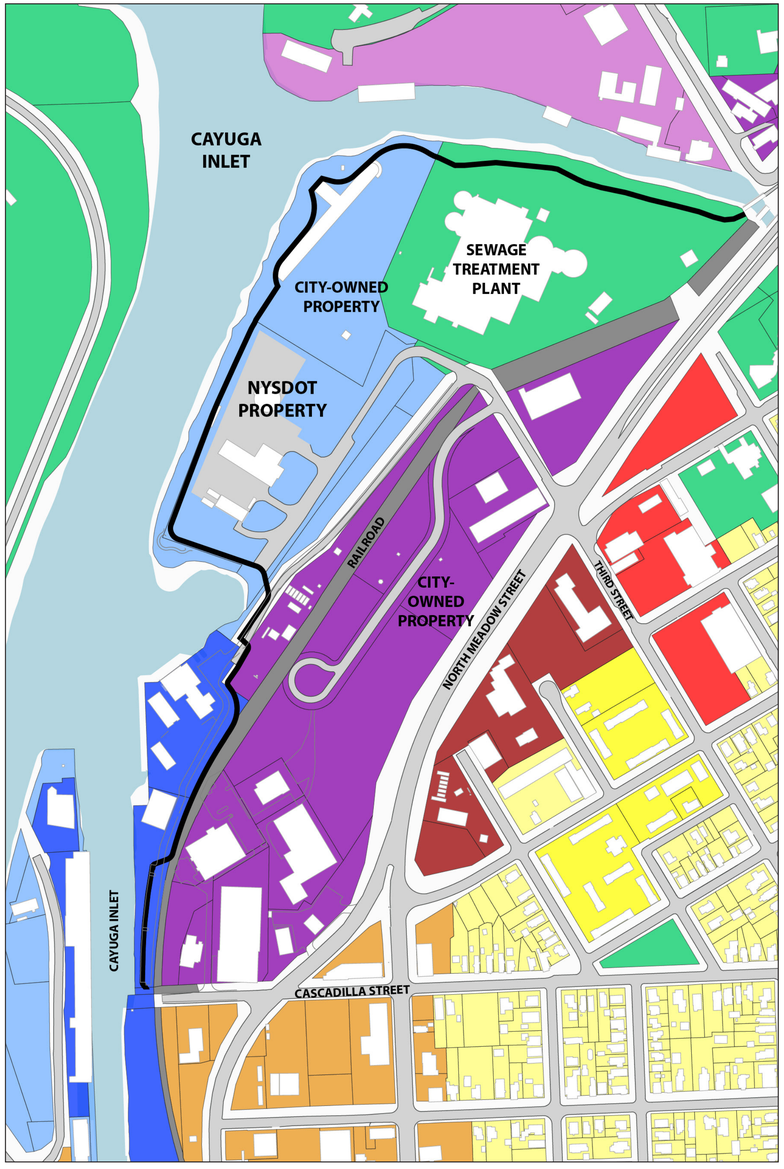
EXISTING LAND USE

KEY

- Commercial
- Community Service
- Industrial
- Public Service
- Recreation
- Residential
- Vacant

EXISTING ZONING



KEY

- B-2
- B-4
- I-1
- M-1
- P-1
- R-2
- R-3
- WF-1
- WF-2
- WEDZ-1
- Rail
- Setback Requirement

EXISTING OWNERSHIP

KEY

- Public
- Institutional
- Private

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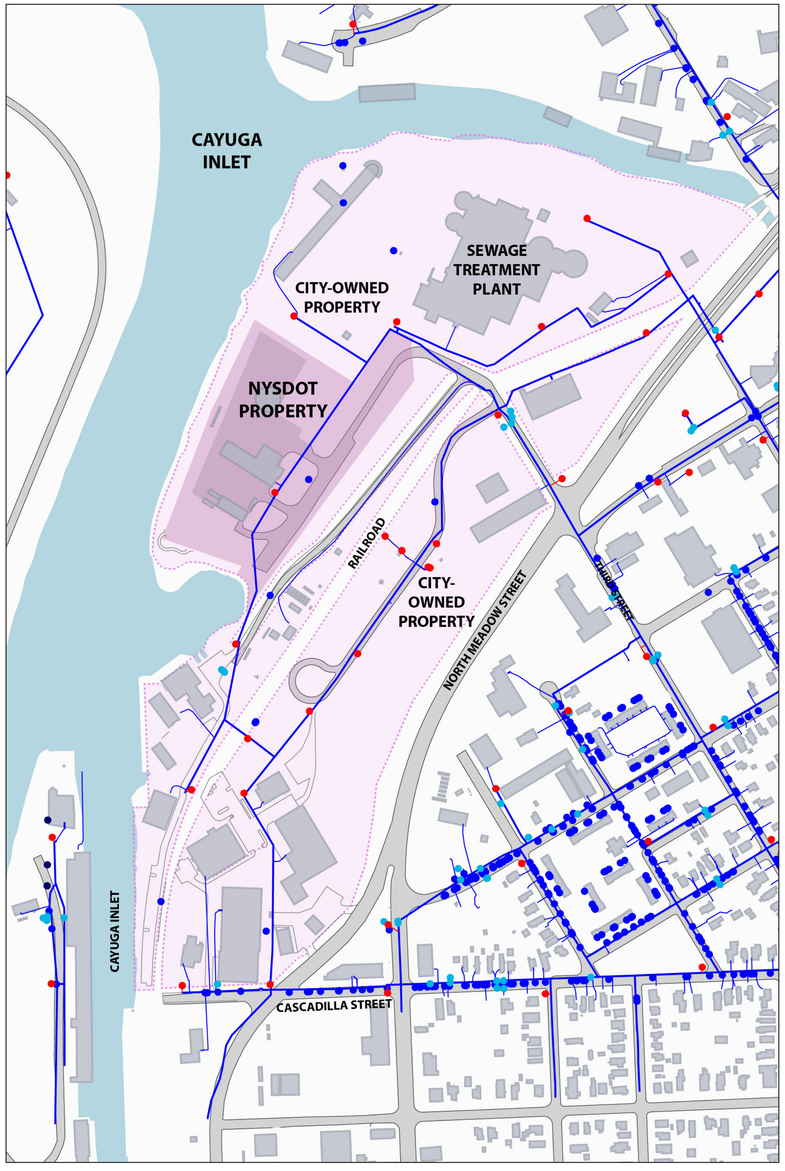
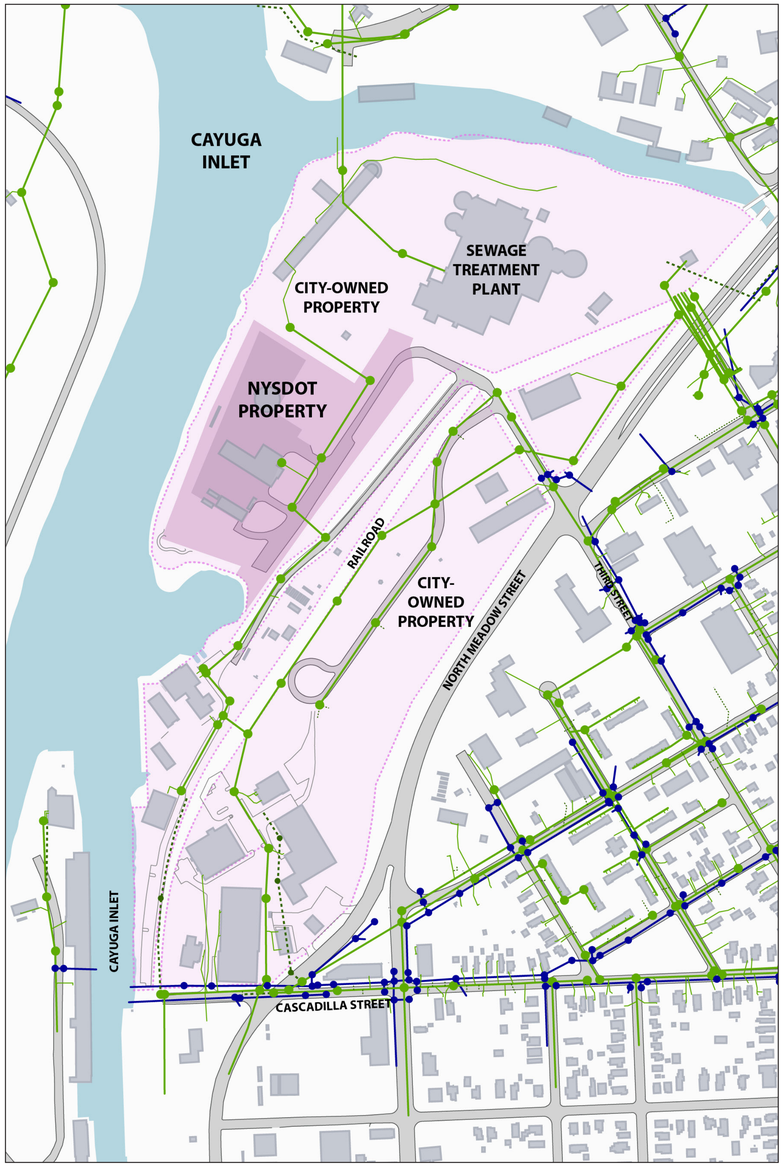
INFRASTRUCTURE - WATER



KEY

- Water Main Line
- Water Lateral Line
- Water WYE Main
- Abandoned Water WYE
- Stub Water Service Valve
- Hydrant Branch
- Hydrant

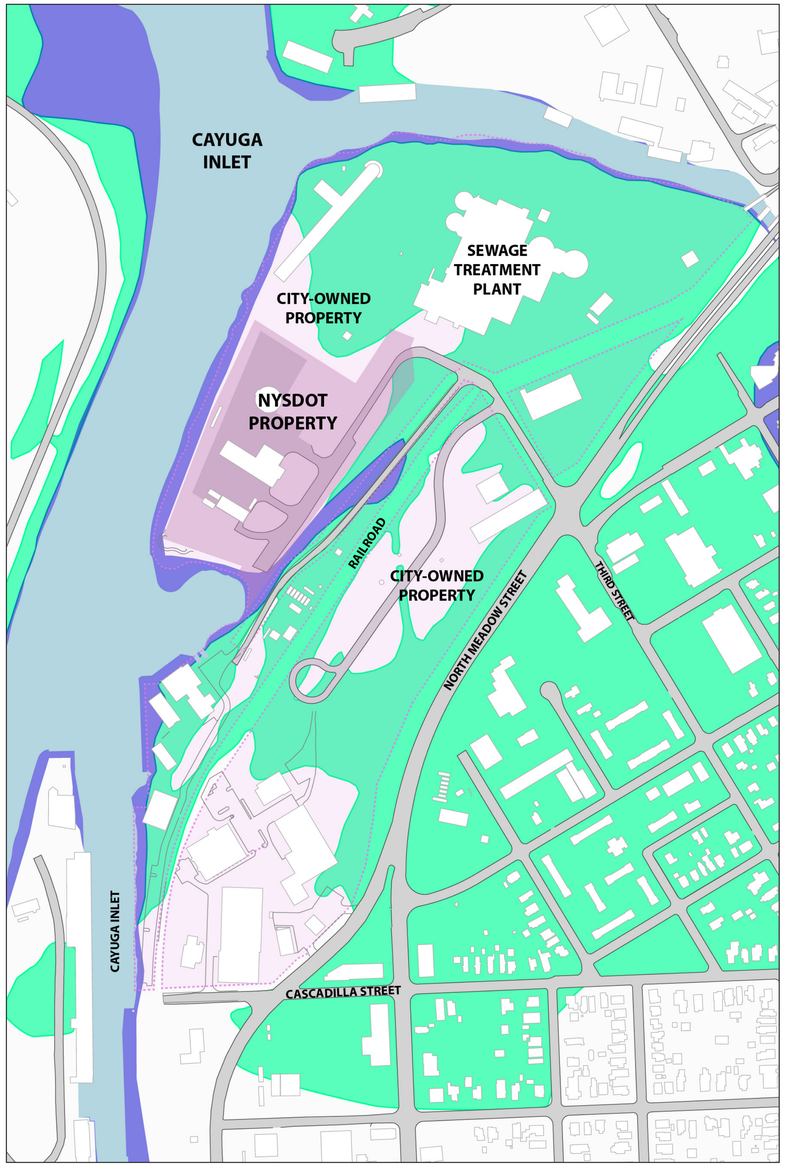
INFRASTRUCTURE - STORM AND SEWER



KEY

- Storm Pipe
- Storm Structure
- Sewer Main Line
- Sewer Lateral Line
- Sewer Manhole
- Abandoned Sewer Main Line
- Abandoned Sewer Lateral Line
- Abandoned Sewer Manhole

FEMA FLOOD ZONES



KEY

- Cayuga Inlet
- 100 Year Flood Zone
- 500 Year Flood Zone

TOMPKINS COUNTY

NYS DOT Facility Relocation Study

April 2015

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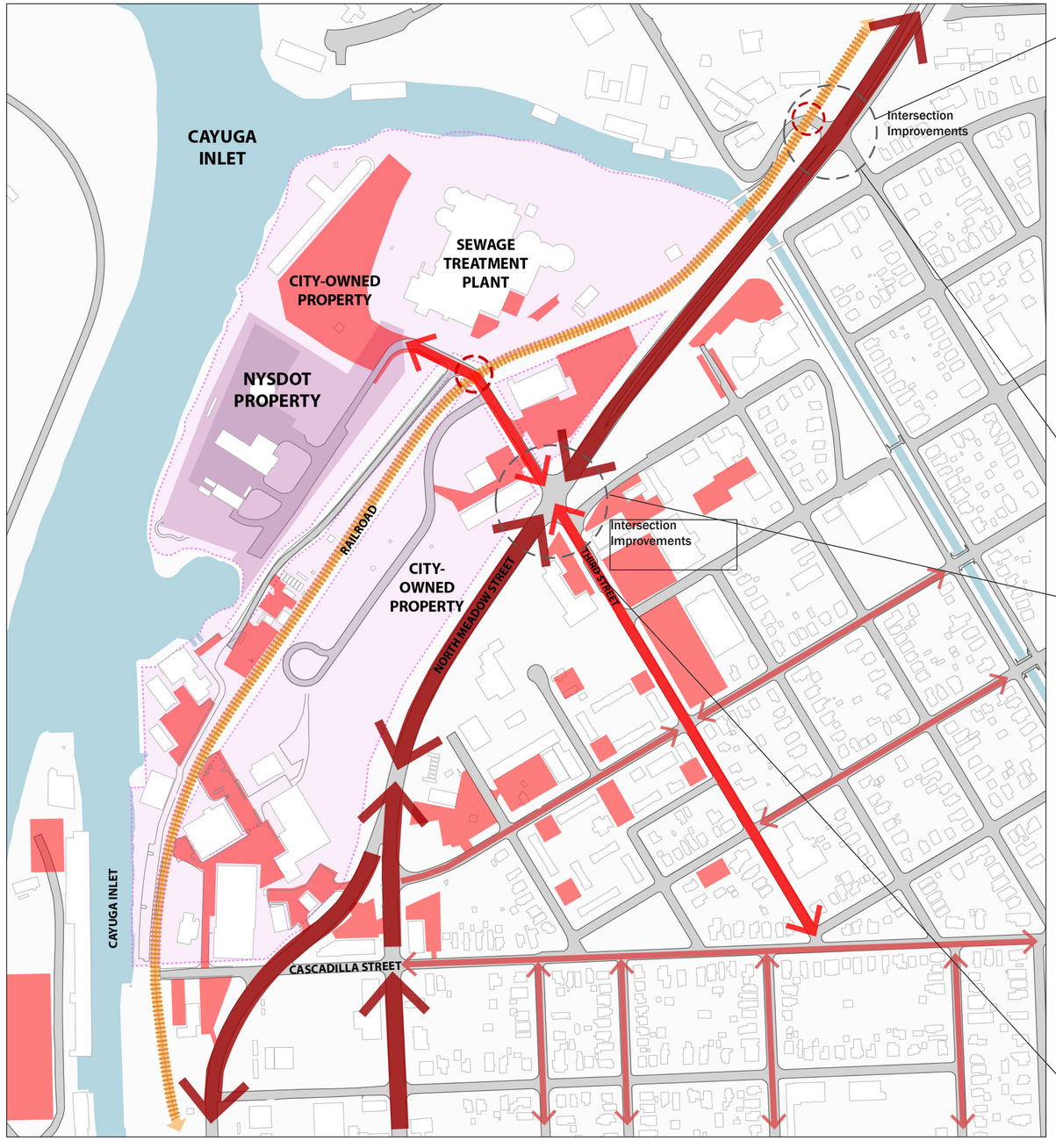
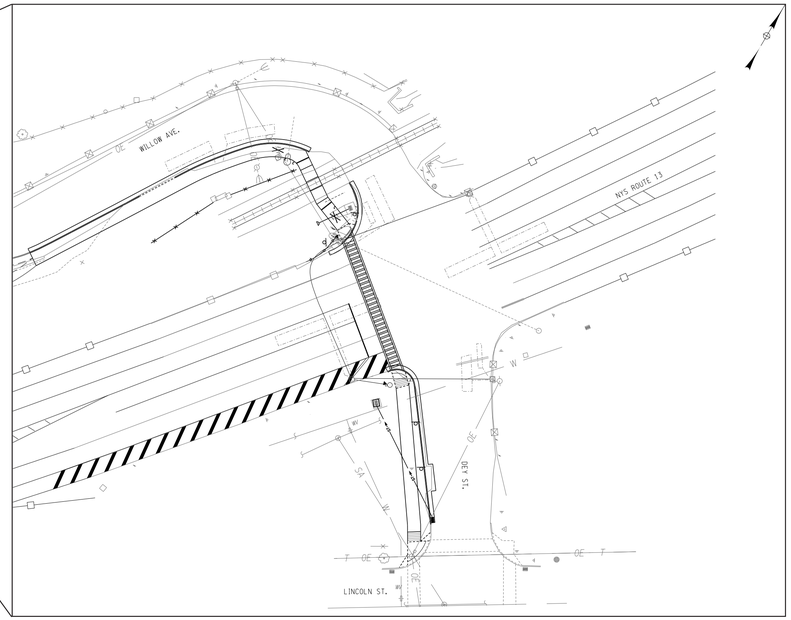
VEHICLE CIRCULATION AND VOLUMES



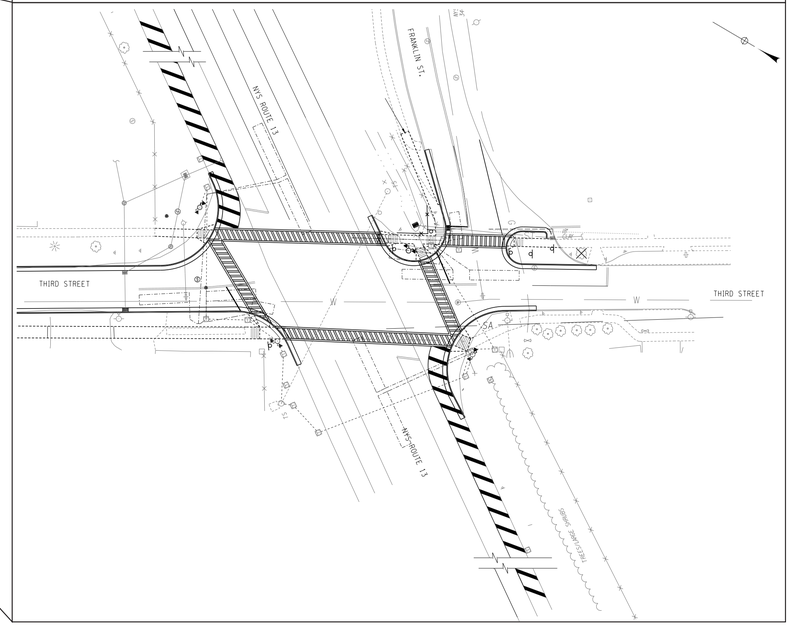
KEY

- High Traffic Volumes
- Medium Traffic Volumes
- Low Traffic Volumes
- Rail Crossing
- Parking Lot

ROUTE 13 / WILLOW AVE. INTERSECTION IMPROVEMENTS



ROUTE 13 / THIRD ST. INTERSECTION IMPROVEMENTS



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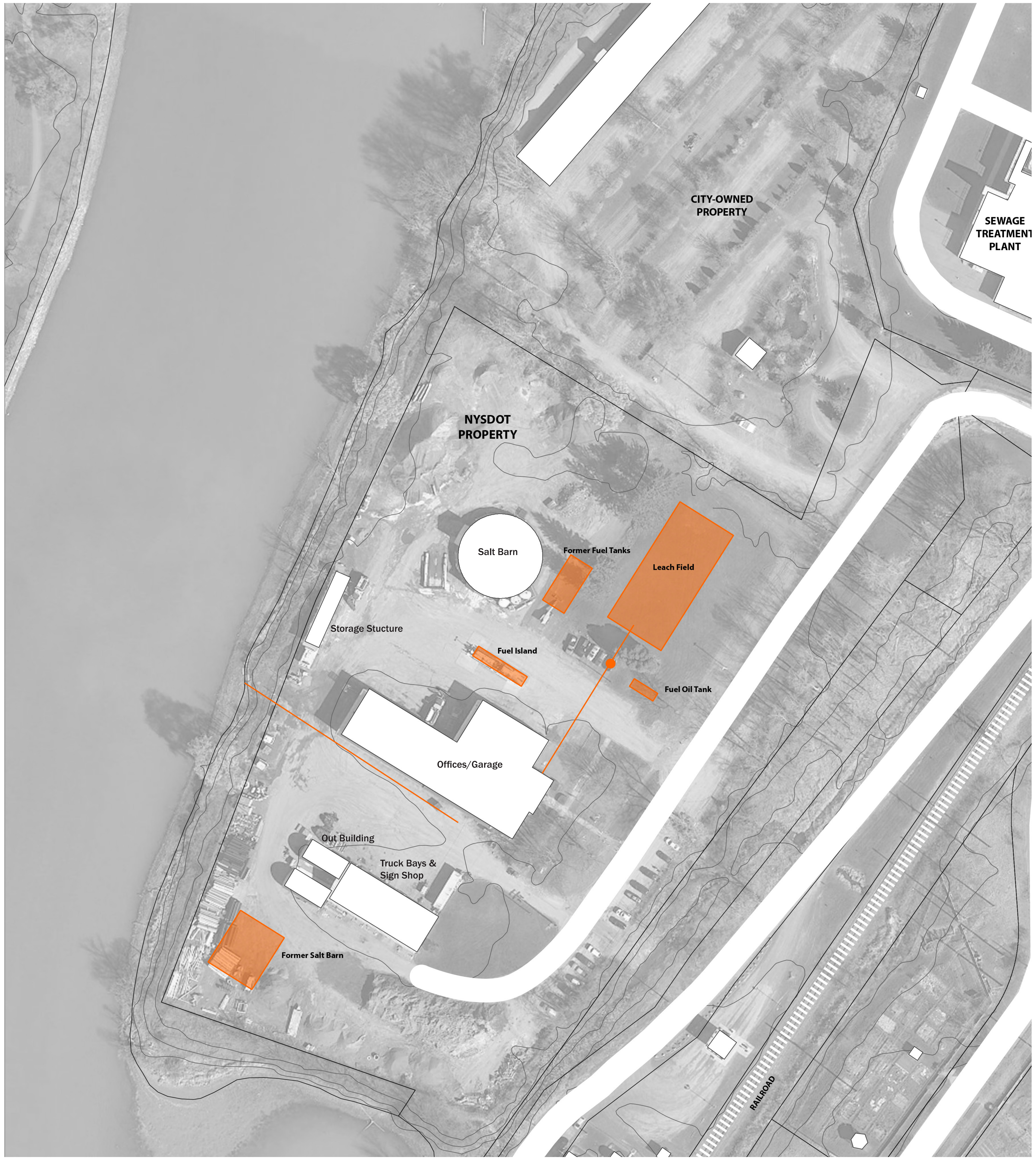
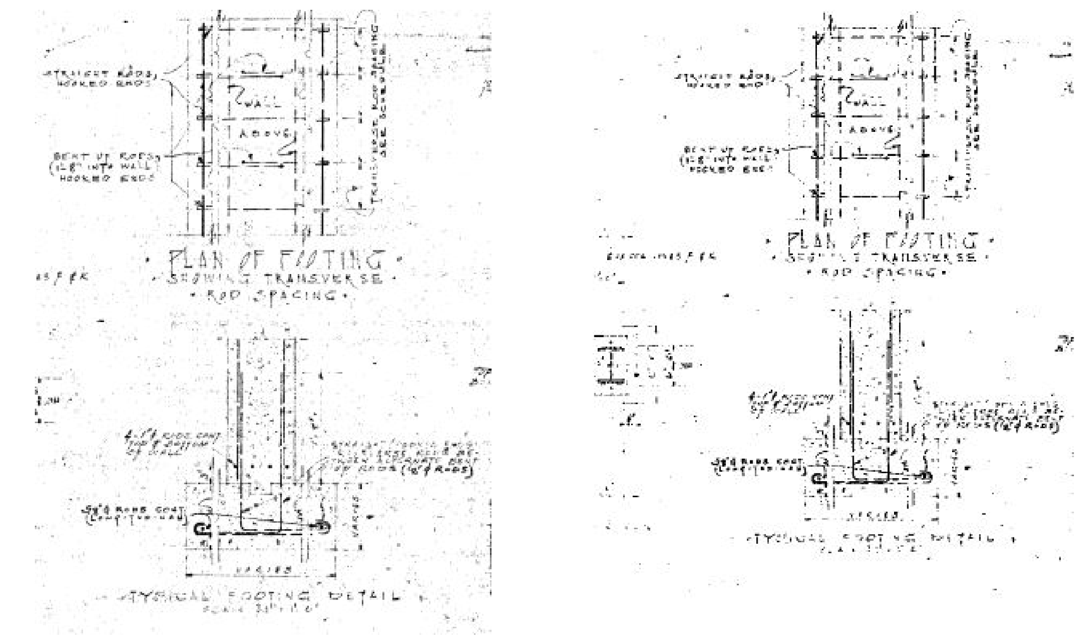
SITE CONDITIONS



FOOTING PLAN AND DETAIL



ZONING ANALYSIS

SECTION 325-8: DISTRICT REGULATIONS CHART — Updated through 1/2003

USE DIST.	PERMITTED PRIMARY USES (See General Notes)	PERMITTED ACCESSORY USES	OFF-STREET PARKING REQUIREMENT	OFF-STREET LOADING REQUIREMENT	SUB-DIST.	MINIMUM LOT SIZE: Area in Square Feet	MINIMUM LOT SIZE: Width in Feet at Street Line	MAX. BLDG. HEIGHT (See § 325-16): Number of Stories	MAX. BLDG. HEIGHT: Height in Feet	MAXIMUM PERCENT LOT COVERAGE BY BUILDINGS	YARD DIMENSIONS (SEE ALSO § 325-18, 325-19): FRONT Required Minimum	SIDE: One Side at Least	SIDE: Other Side at Least	REAR: Percent of depth or number of feet, whichever is less	MINIMUM BUILDING HEIGHT: Minimum Height in Feet (See General Note 12)
1	2	3	4	5		6	7	8	9	10	11	12	13	14/15	16
B-1	1. Any use permitted in R-3. 2. Funeral home or mortuary. 3. Business or professional office. 4. Bank or monetary institution. 5. Office of government. 6. Public, private or parochial school. See § 325-41, Design Review	1. Any accessory use permitted in R-3. 2. Employee, customer or public parking areas (See §325-20). 3. Signs as permitted by Sign Ordinance. See § 325-41, Design Review	B-1a: 1. Same as R-3. 2. Funeral home: 1 space per 10 seats. 3. Business or professional office: 1 space per 250 SF of office floor. 4. Other uses: See § 325-20. B-1b: NONE.	1. Same as R-3. 2. Office building: 1 space.	B1a	1. Residential uses: same as R-3a. 2. All others: 5,000.	40	4	40	50	5	10	5	15% or 20 feet.	NONE.
					B1b	1. Residential uses: same as R-3a. 2. All others: 3,000.	30	6	50	90	5	5	5	10% or 15 feet.	25
B-2	**B-2a, b, c:** 1. Any use permitted in B-1. 2. Retail store or service commercial facility. 3. Restaurant, fast food establishment, tavern. 4. Club, lodge or private social center. 5. Confectionery, millinery, dressmaking and other activities involving light hand fabrication as well as sales. 6. Theater, bowling alley, auditorium or other similar place of public assembly. 7. Hotel, motel. **B-2d:** 1. Any use permitted in B-1. 2. Retail store or service commercial facility. 3. Confectionery, millinery, dressmaking and other activities involving light hand fabrication as well as sales. **B-2a,b,c,d:** BY SPECIAL PERMIT OF BD. OF APPEALS: 1. Redemption centers. See § 325-41, Design Review See § 181-13, Fire Limits.	1. Any accessory use permitted in B-1. 2. Redemption Centers. See § 325-41, Design Review	**B-2a:** 1. Same as B-1a. 2. Retail store: 1 space per 500 gross SF of floor area. 3. Auditorium, theater: 1 space per 5 seats. 4. Bar, tavern, restaurant: 1 space per 50 SF net floor area in assembly space. 5. Hotel, motel: 1 space per guest room. 6. Other uses: See § 325-20. **B-2b:** 1. Residential uses: 1 space per three persons housed in building. 2. All other uses, see § 325-20; except in a mixed use building, the parking requirement for any use on the ground floor only except office or residential shall be waived when at least an equal amount of gross floor area at the second story or higher is devoted to residential use. **B-2c: NONE.** **B-2d:** Same as B-2a except that there shall be no off-street parking requirement for residential use and further provided that there shall be no off-street parking required for any building in which 60% or more of the gross square footage is devoted to residential use. See requirements for Collegetown Parking Overlay Zone	B-2a, b and d: 1. Same as B-1. 2. Retail Store: 1 space for ea. use with 3,000 to 10,000 SF of floor space, plus 1 space for ea. add'l. 15,000 SF or major fraction thereof of floor space in single occupancy. 3. Maximum required: 4 spaces for any single occupancy. 4. Other uses: See § 325-21. B-2c: NONE.	B2a	1. Motel: 20,000 2. All others: 3,000	1. Motel: 100 2. All others: 40	6	70	50% (75% when adequate off street parking is available within 500 ft.) (See § 325-20)	NONE	10	5	15% or 20 feet.	NONE.
					B2b	1. Motel: 20,000 2. All others: 2,500	1. Motel: 100 2. All others: 25	6	60	100% Except as required for rear yard.	NONE	NONE	NONE	10 feet minimum.	NONE.
					B2c	No minimum lot size.	25	NONE	50	85% Except as required for rear yard, or side yard.	NONE	10	NONE.	15% or 20 feet.	25
					B2d	3,000	40	NONE	40	75%	10	10	5	15% or 20 feet.	25
WF	1. Any use permitted in B-2. 2. Parking Lot. 3. Recreational or cultural facility such as a park, playground, art museum, fishing pier or yacht club. 4. Public Recreation. 5. Boatel. 6. Sale, rental, repair or storage of marine related recreation equipment such as boats, marine engines, sails, cabin equipment. 7. Light manufacture of marine recreation related products involving substantial hand fabrication such as sails, boat hulls, cabin fittings. See § 181-13, Fire Limits	1. Home occupation. 2. Boat fuel dispensing. 3. Snowmobile sales, service, rental in conjunction with boat sales, rental or service. 4. Signs as permitted by Sign Ordinance.	None	None	WF-1a	3,000	Width in Feet at Street Line – 30 Width in Feet at Waterfront – 30	No Buildings Allowed		100% (For parcels 50' or less wide) -- Except as may be required for provision of pedestrian and protection of view corridors.	None	None	None	10' Min. No build within 40' to bulkhead or to bank of Flood Control Channel and No build within 12' to bulkhead or to bank of Cayuga Inlet, measured at average water level, except for structures directly connected with marine, public or commercial recreation activities.	0
					WF-1b	3,000	Width in Feet at Street Line – 30 Width in Feet at Waterfront – 30	1	12'-15'+ add'l. 5' for cornice. See Also §325-3.B.	90% (For parcels with 3 or more boundaries greater than 50' wide)-- Except as may be required for provision of pedestrian and protection of view corridors)	None	None	None	10' Min. No build within 40' to bulkhead or to bank of Flood Control Channel and No build within 12' to bulkhead or to bank of Cayuga Inlet, measured at average water level, except for structures directly connected with marine, public or commercial recreation activities.	12
					WF-1c	3,000	Width in Feet at Street Line – 30 Width in Feet at Waterfront – 30	2 - 3	39 See Also §325-3.B.		None	None	None	10' Min. No build within 40' to bulkhead or to bank of Flood Control Channel and No build within 12' to bulkhead or to bank of Cayuga Inlet, measured at average water level, except for structures directly connected with marine, public or commercial recreation activities.	24' and at least 2 habitable stories covering 75% or more of the building footprint
					WF-1d	3,000	Width in Feet at Street Line – 30 Width in Feet at Waterfront – 30	3 - 5	63 See Also §325-3.B.		None	None	None	10' Min. No build within 40' to bulkhead or to bank of Flood Control Channel and No build within 12' to bulkhead or to bank of Cayuga Inlet, measured at average water level, except for structures directly connected with marine, public or commercial recreation activities.	36' and at least 3 habitable stories covering 75% or more of building footprint/ OR if 75% of building over footprint is min of 36' tall and 2 or more habitable stories. See Also §325-3.B.

General Notes

1. For minimum lot size requirements stated in Column 6, (Area in Square Feet), for all residential use districts, each square footage requirement applies separately to the initial permitted primary use and to each additional permitted primary use located in a separate building on the property in question, (e.g., in R-2b districts, an area of 3,000 square feet is required for a one-family house or two-family house and an additional area of 3,000 square feet is required for each additional one-family house on the property.)
2. Land filling and bulkheading plans and procedures shall be subject to the approval of the Board of Public Works.
3. Regulations, standards and permitted uses are generally cumulative, except for the P-1, FW-1, and MH-1 districts and except where otherwise indicated by specific prohibition or omission.
4. Where a variance or special permit is required, or where special conditions apply, to allow in one district a use which is permitted by right in another district, the regulations applying to such use shall be those of whichever district has the stricter regulations, unless otherwise determined by the Board of Zoning Appeals.
5. All uses permitted or allowed in any district shall conform to the General Performance Standards as set forth in § 325-23.
6. Any use permitted under this Ordinance shall, if located within the FH-1 Zone, meet the requirements of Section 325-27 in addition to those otherwise applicable to it under district regulations.
conversion: 7,000 for 1st 1-3 units
7. In R-1 and R-2 districts, minor dependent children in the care of a parent or relative shall be excluded in determining the number of unrelated occupants in a dwelling unit.
8. In All districts where multiple dwellings are permitted, each multiple dwelling shall be required to have a rear yard of at least twenty (20) feet in depth. (This requirement has been imposed so that these structures comply with the New York State Uniform Fire and Building Code).
9. In all districts, the New York State Uniform Fire and Building Code may impose additional requirements pertaining to the location of a structure on a parcel of property including, for example, additional setback requirements.
10. All columns established by this section are subject to the supplementary regulations stated in Article V of this ordinance.
11. For special conditions on development of property in R-3 that directly abuts R-1, see Section 325-9 B(2).
12. See Section 325-8A(15) for applicability of minimum height regulations.

This chart is to be used for reference purposes. See Section 325-4 for full zoning ordinance descriptions.

Supplementary Standards

Article II. Zoning Districts, Section 325-4. Establishment of Districts

C. Additional restrictions for WF-1 and WF-2 districts (Sec. 325-8, C)

1. Lookout Point restrictions. The first 100 feet south from the northern tip of Inlet Island is to remain a no-build area. In addition, in the first 300 feet south from the northern tip of Inlet Island, no building may be constructed that is greater than one story in height.

2. Flood control channel restrictions. For all properties that are located along the flood control channel as shown on the City of Ithaca Zoning Map, or properties that directly abut the Department of Environmental Conservation twenty-five-foot permanent easement, no construction is permitted within the first 25 feet along the flood control channel, measured from the top of the existing bank. The first 15 feet of the no-build area is to be unobstructed space, but may have removable vertical elements, so that maintenance equipment can access the flood control channel. Outdoor furnishings, such as benches, may be placed in the remaining 10 feet adjacent to the building but must be kept to no more than 25 feet in length with 50 feet of clear spaces between to allow for vehicular access.

3. Stepback requirement. For all properties within the WF-1 zoning district that have frontage on the waterfront the first 10 feet of any new construction facing the waterfront is restricted to be at least two stories and not more than three stories in height. As an incentive, buildings that provide a public walkway along the waterfront shall be exempt from the stepback requirement. In addition, any properties that are located along a public waterfront walkway or an easement for a public waterfront walkway are exempt from the stepback requirement.

4. Setback requirement. All properties within the WF-1 zoning district that are located along the waterfront are to maintain a fifteen-foot no-build area measured from the shoreline or from the inner boundary of the easement for the Cayuga Waterfront Trail where such easement exists.

"This document was prepared for the New York State Department of State with funds provided under Title 11 of the Environmental Protection Fund."

Appendix 5: List of Stakeholders & Interview Notes

NYS DOT Relocation Feasibility Study, Ithaca NY

STAKEHOLDERS LIST

Created: 2/13/2015
Revised: 6/18/2015

B&W Supply

Rebecca S Benjamin, CEO
1013 Taughannock Blvd
Ithaca, NY 14850

Principal Executive Office
510 Third Street
Ithaca, NY 14850
607-273-5300
800-433-0830
customerservice@bwsupply.com

Ithaca Farmers Market

Jan Norman, Board President
607-275-9967
OR
Aaron Munzer , Ithaca Farmers Market Manager
aaronmunzer@ithacamarket.com
aaronmunzer@gmail.com
Plowbreak Farm, Co-Owner
(845) 594-7126 Farm ?
(607) 594-7126 cell
www.plowbreakfarm.com

Cheryl Barton
bartoncr@gmail.com
(607) 592-3426

Cody Currier, Ithaca Farmers Market Manager
codyccurrier@gmail.com
(607) 342-6951

Carpenter Business Park

Templar LLC
PO Box 6700
Ithaca, NY 14851

Cornell University (Real Estate)

Jeremy Thomas (new director)
Jt675@cornell.edu
(607) 266-7869

Leslie Schill (University Planner)
Leslie.schill@cornell.edu
607-255-5239
607-351-6197 Cell

Cornell University (Rowing)
Todd Kennett
tpk2@cornell.edu
(607) 255-8642
607-351-6197 (cell)

Ithaca College (Rowing)
Dan Robinson
Ithaca College Crew
953 Danby Road
Ithaca, NY 14850
drobinson@ithaca.edu
607-274-1266

Cayuga Waterfront Trail
Rick Manning, Program Coordinator
607-592-4647
rmannin4@twcny.rr.com

Ithaca Area Wastewater Treatment Facility
Dan Ramer, Chief Operator
607-273-8381
dramer@cityofithaca.org

Mirabito Energy (Formerly Andree Petroleum) – Robert Andree is the listed owner according to tax records
Travis Andree
684 3rd Street
Ithaca, NY 14850
607-272-2250

Community Garden
Project Growing Hope, Inc. (Community Garden)
PO Box 606
Ithaca, NY 14851
Judith Barker, Board President
Karen Smith, Secretary (kks3@cornell.edu)

Stakeholder Outreach Comments

Below are comments received from adjacent businesses ("stakeholders") regarding the NYS DOT Maintenance Facility and general thoughts and concerns regarding existing conditions and the future development of DOT site.

Cheryl Barton (Ithaca Farmers' Market)

- Operates Saturday and Sunday – 1st Saturday of April to December
  - Saturday 9 AM to 3 PM, Sunday 10 AM to 2 PM
- Traffic congestion on Route 13 is a problem
- Poor parking design – overcrowded during weekends and overflowing to adjacent streets.
  - Vehicles park in the DOT lot and Aldi lot, which has drawn complaints in the past
- Farmers Market has out grown the facility – More space and amenities are needed (e.g. kitchen, full enclosure, improved bathrooms, classroom space)
- The ability to operate year-round would be ideal
- Pavilion can accommodate up to 90 vendors, however, it needs to be reconfigured
- Site has major development potential
- Rents space in the winter months from GreenStar Coop and fits 40 vendors
- Vendors in the winter months are on a lottery system and is based on a seniority list
- No issues with water or electric service
- Need Wi-Fi, so that vendors can process credit cards using Square Car Reader, this would increase sales and would attract more customers
- Community dock for boats would be a great amenity for the Market. Cheryl referenced Lake Winnipesaukee, NH and how it was great to utilize water travel to access community services and businesses
- Railroad corridor is not a major problem, but sometimes creates back-ups, however, this occurs throughout the City

Aaron Munzer (Ithaca Farmers' Market)

- 20 year lease on building, 15 years remaining with Ithaca Urban Renewal Agency (IURA)
- Clause in lease that IURA can terminate lease within a 2 year period
- Ideal redevelopment scenario – Mixed-use with Market being the anchor
- There have been discussions with the DPW and the City regarding the Waste Water Treatment Plan and future expansion of the facility.
- Traffic
  - Left turning lane light on North Meadow Street (Rt 13) onto 3rd Street is a major problem – light is too short
  - No right turn off 3rd Street onto Route 13
  - Between 9am and 12pm – average of 1,600 cars in the parking lot that overflows onto adjacent streets, which creates pedestrian issues with cars along each shoulder of the roads

Cody Currier (Ithaca Farmers' Market – Manager)

- Appropriateness of other locations on the broader site or elsewhere in Ithaca
- Optimal gross floor area for a redeveloped market (min and max)
- Other space considerations (e.g. enclosed, multi-story)
- Parking considerations (e.g. number of spaces, proximity)
- Other uses that may complement the market (e.g. dining, food manufacturing, retail, potentially other types of market vendors)
- Development costs for new market
- Sources of funding for redevelopment

Need better parking, bigger pavilion, and more community oriented space that can be used all season.

Our footprint is restricted because the power lines need a right of way, plus we need a setback from the water. There's really no room to expand the current pavilion. If the power lines could be moved or buried, they'd have more space to do expansion.

We don't have enough parking spaces, but also the rate at which people can get out of the parking lot isn't fast enough. Can't improve the timing of the light because that intersection is state-regulated. Note the parking lot is the expansion site for the water treatment plant, which is at capacity as well. So they are aware they need to think about alternative space and growth space. They are open to the DOT site.

Other needs: more bathrooms, indoor ATMs.

They can fit 89 vendors, plus they've set up a few spaces outside the pavilion. But they have a waitlist for Saturdays. They have 165 vendors who are members, and who switch off how often they attend. But they could accommodate more. We have at least 10-20 vendors who want to be there on Saturdays. Accommodating those would be important.

Is there demand during the off-season? Currently IFM rents out a warehouse space from GreenStar Coop for a winter market. It fits 40 vendors and all winter it was full. The outdoor market runs from April 1 to end of December. The Many of the vendors would rather be in a slightly warmer place during the colder months and visitation may increase as well (there is a drop-off).

IFM also runs markets Tues (at DeWitt Park), Weds (at East Hill Plaza), and Thurs (at Hancock Street). They've tried weekday markets up by pavilion but it wasn't successful.

Does the market need to be along the water? Customers come for the experience and that small area is their identity. Waterfront access is potentially a big part of it. But we understand this is valuable land and that we may not be able to be here forever.

Event space appeal and aesthetics are important. One of their biggest sources of revenue is weddings. Every summer weekend they're booked. 30 bookings already. They do some community events, but

mainly weddings. We may be interested in doing concerts or entertainment venue stuff, if we had the right space, like the Syracuse market.

In being part of any development project, they want to maintain their face, aesthetic, autonomy. They're not city-owned, and it's important they keep their independent identity. They don't want something industrial –feeling.

Complementary uses?

- Commercial kitchen space? (May not be commercially viable but perhaps in concert with a seasonal restaurant or catering facility – food-makers would be willing to work at night.)
- Fitness and recreation? (Given connection to trail, Cornell rowing, etc. Could there be fitness events? Could that be a value driver?)

The way the pavilion was built before, there was a matching grant (from the State?). It was built cheaply, slowly, in stages. No way they could do that again. The State recently allocated $5M to the volunteer farmers markets program. For them, grants are the #1 source. They also take inspiration from the Sciencenter, which got community support and led a big fundraising initiative. They don't generally ask the community for $$ but for this would need to do so.

Best comparable markets:

- Syracuse is different. They're not a producer market; they get produce wholesalers, so it's more industrial. They have five heated barns that are separated by product. She liked the quality of the new building.
- Rochester Public Market is very successful, though it also has large wholesale contingent. Just got $7M from city to renovate pavilion.
- She's heard that Portland, Oregon has a great market

Dan Robinson (Ithaca Rowing)

- Ideal redevelopment scenario – mixed-use development
- Traffic is a major issue due to cut-through traffic and the Farmers' Market
- DOT facility is not an ideal use for the waterfront district and the City could benefit with a smarter design
- Community boathouse would be a great attraction for the waterfront and would bring more people to the area.

Dan Ramer (Ithaca Area Wastewater Treatment Facility)

- Facility is approximately 50% self sufficient
- Submitting application to NYSEG
- Looking to expand energy to spur economic development
- Currently utilizing digesters to produce electricity

- DOT property takes up too much valuable space and doesn't generate revenue and the property is underutilized with a lot of development potential
- Mentioned Cornell University conducted a build-out analysis for the study area a few years ago and that he would try obtaining and copy of the build-out
- Developing plans to contract with more companies to accept more food and by-products

Jeremy Thomas (Cornell University Real Estate)

Cornell's main interest in the site is through Cornell Athletics, which has a rowing center there, as does Ithaca College.

They have some concerns about adjacent uses (such as the waterfront path) and how they may interfere with active boathouse use (i.e. a skateboarder crashing into rowers as they load up their boats). Overall, he thinks there could be more planning as this waterfront area evolves.

The DOT site is potentially transformative as a development site. But it is also kind of awkward if you don't do something with the land in between the site and Route 13.

Short-term (next five years), they're not in a mode where they'd be embarking on any capital projects or construction in this area.

Cornell would be interested in participating in a master planning exercise for the broader area between Cascadilla Street and the Creek.

[In a follow up note, Jeremy added: *FYI, the two buildings we own are occupied by our press/printing agency and by a storage building we own. It would take some work, but there would be potential for sale of those sites to someone looking to consolidate a site or develop the area.]*

When thinking about the whole district, you need to think about connections to the grid and integration into the neighborhood – otherwise it becomes a backwater area, like it is now.

Non-residential uses in a mixed-use development:

- Something that brings people there. Retail would be tough except for people living there. Restaurant, something related to bikes, related to the trail that's there.
- Right now there's not a great place to hang out by the water and get a meal or drink.
- Indoor, year-round market (maybe a Green Star satellite.)
- Re: tech/office space, they run Langmuir Labs at the Business & Tech Park – companies rent space month to month for cheaper rent. Great for people who need affordable wet lab space. But there may be a need for step-up, longer-term wet lab space.
- Tom Shryver is a good person to talk to. He has REV (startup incubator) and thinks that startup uses should be near downtown, but there may be a similar need for step-up space.

Robert Andree (formerly Andree Petroleum, now Mirabito Energy)

Note: Cynthia Yahn/Carpenter Park 607-327-1615

- Skate board park
- Community Gardeners
- Park on lawn at Andree's
- Block roads
- Purity Ice on south (traffic back-up)
- Stewart on north (traffic back-up)
- Sold to Mirabito Energy – Owns underlying land
- Did not like waterfront trail
- 3 to 5 (min-max) stories
- 10 year F
- Pedestrian bridge across Cayuga Inlet from Cass Park to Farmers' Market. (Note: Expensive parking solution for Farmers' Market and not that feasible)
- Finding parking solution

Tim Logue (Traffic Systems Engineer)

- 3rd Street is a dedicated ROW up to the railroad tracks and after the crossing the road becomes track parcels

Comments from April 20, 2015

- Stewart Park
- Bad quality water
- Chemicals to control hydrilla
- "Okay to swim in"
- "Dredging" has not happened
- Removing right lane because of trail
- Traffic problem
- Farmers' Market not best use for land
- Wouldn't be allowed if privately developed

Penn Line, LLC (Owner of railroad line)

Tracks are used for two main purposes:

- Tracks are used to transfer coal to Cayuga Operating Company, LLC (formerly known as AES Cayuga) to generate electricity for the Town of Lansing
- Tracks are also utilized for the transfer of salt from a Lansing company

Most common voiced comments from stakeholders are listed below:

1. **Traffic congestion related to Farmers' Market**
2. **Poor parking design/inadequate parking**
3. **Outgrown existing footprint – Additional amenities are needed**
4. **Mixed-use development – Ideal development scenario for the waterfront**

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Appendix 6: Comprehensive Projects / Detail Cost

Appendix:

Comparable Projects

Detailed Valuation

Comparable Projects | Multifamily: Recently Developed

Lofts @ Six Mile Creek

- Downtown
- 45 Units/7 stories
- Studio, 1 BR, 2 BR units
- Opening Fall 2015
- Structured Parking
- Adjacent to public green space
- Walk to retail and restaurants

Sample Units	SF	Rent/month	$/SF
Studio	555 SF	$1,220	$2.20
1 BR	981 SF	$2,160	$2.20
2 BR	1,135 SF	$2,095	$1.85
Average (all available units)			**$2.24**
Median (all available units)			$2.20

Comparable Projects | Multifamily: Recently Developed

Cayuga Place

- Downtown
- 68 Units/5 stories
- Studio, 1 BR, 2 BR units
- Opened in 2008
- Nearby structured parking
- Adjacent to public green space
- Walk to retail and restaurants

Sample Units	SF	Rent/month	$/SF
Studio	575 SF	$1,175	$2.04
1 BR	800 SF	$1,320	$1.65
2 BR	1,100 SF	$1,780	$1.62
Average (all available units)			**$1.77**
Median (all available units)			$1.65

Comparable Projects | Multifamily: Recently Developed

Gateway Commons

- Downtown
- 25 Units/6 stories
- 1 BR, 2 BR, 3 BR units
- Opened in 2007
- Off-street surface parking
- Access to public green space, retail and restaurants

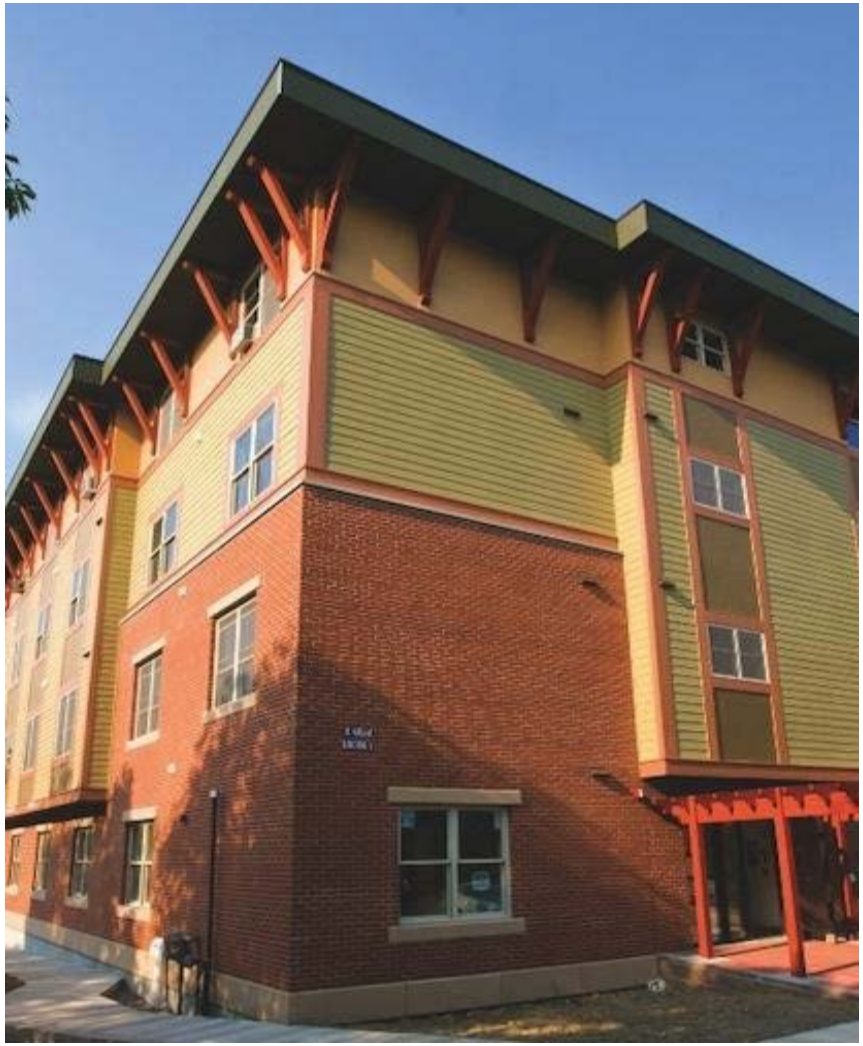
Sample Units	SF	Rent/month	$/SF
1 BR	892 SF	$1,800	$2.02
2 BR	1,205 SF	$2,670	$2.22
3 BR	1,780 SF	$3,672	$2.06
Average (all available units)			**$2.05**
Median (all available units)			$2.03

Comparable Projects | Multifamily: Recently Developed

Coal Yard Apartments (Building #3)

- East Hill
- 24 Units/4 stories
- Studio, 1 BR, 2 BR, 3 BR units
- Opened in 2012
- 10-20 minute walk to Cornell
- Structured and surface parking available
- Adjacent to East Hill Recreation Trail
- On-site café

Sample Units	SF	Rent/month	$/SF
1 BR	687 SF	$1,800	$2.62
2 BR	883 SF	$2,025	$2.29
3 BR	1,589 SF	$3,045	$1.92
Average (all available units)			**$2.22**
Median (all available units)			$2.16



Comparable Projects | For-Sale: Recently Developed

Belle Sherman Cottages

- Belle Sherman
- Single-family detached and townhouses
- 2 BR and 3 BR units
- Some units occupied, some under construction

Sample Units	SF	Sale Price	$/SF
Detached	1,770 SF	$350,800	$198
Townhouse	1,325 SF	$272,225	$205
Townhouse	1,525 SF	$315,500	$207
Average (all available units)			**$201**
Median (all available units)			$201

Comparable Projects | Multifamily: Proposed

323 Taughannock Boulevard

- Inlet Island
- In pre-development
- 20 units on 3 floors above office/parking
- 1 BR, 2 BR, 3 BR units
- 600-1,500 SF per unit
- Rooftop terrace

Comparable Projects | Multifamily: Proposed

Ithaca Library Redevelopment

- Downtown
- Travis-Hyde selected as Preferred Developer August 2015
- 63 age-restricted rental units
- 1 BR, 2 BR units
- 600-800 SF per unit
- Fitness center and community room
- 30 spaces off-street parking

Comparable Projects | Multifamily: Proposed

Carey Building

- Downtown
- Under construction - expected completion in 2016
- 20 units on 4 floors above office/retail
- 16 400-500 SF studios
- 4 large 2 BR
- No dedicated parking
- Rooftop terrace for 2 BR units

Comparable Projects | Multifamily: Proposed

Chain Works District

- South Hill
- In pre-development
- 200+ units in mixed-use redevelopment over 2 or more phases
- Additional units in potential ground-up phases
- 1 BR, 2 BR, 3 BR units
- Rooftop terrace

Detailed Valuation | Cost and Value by Use

	Preferred	Hotel	Max Density
		Total Values	
Multifamily:	$22,941,357	$14,201,800	$37,416,271
Townhouse:	$17,529,943	$3,810,857	$ -
Retail:	$2,810,357	$1,383,943	$2,768,682
Hotel:	$ -	$38,169,900	$ -
Total:	**$43,281,657**	**$57,566,500**	**$40,184,954**
		Total Costs	
Multifamily:	$18,538,951	$11,849,375	$30,193,577
Townhouse:	$12,658,880	$2,873,834	$0
Retail/Restaurant:	$2,585,567	$1,217,061	$2,543,537
Developer Profit:	$3,668,610	$5,071,074	$3,563,982
Total:	**$40,354,713**	**$55,781,813**	**$39,203,801**
Stabilized-Year Residual Land Value:	**$2,926,944**	**$1,784,687**	**$981,153**
Present-Year Residual Land Value:	**$2,323,503**	**$1,416,742**	**$778,871**

Detailed Valuation | Construction Cost Comparables

Project	All In Cost/SF	Project Year	Notes
Mid-rise Multifamily			
210 Hancock	$200.00	Pre-development	Four stories, challenging soil conditions
323 Taughannock	~$300.00	Pre-development	Four stories over parking, challenging soil
Lofts@SixMileCreek	$197.48	2015	
Seneca Way	$190.10	2014	Low cost
Cayuga Place	$175.96	2008	Over retail
Gateway Commons	$184.87	2007	Over retail
Low-rise Multifamily & Townhouse			
Ithaca Greenways	$200.00	Pre-development	Vertical costs only: $150/sf; high infrastr. costs
Stone Quarry Apartments	$175.00	2015	Vertical costs only: $125/sf
Hotel			
Hilton Canopy	$255.03	Pre-development	
Ithaca Marriott	$320.00	Under construction	
HR&A Construction Estimates			
Multifamily	$215.00		
Townhouse	$165.00		
Hotel	$287.00		
Retail	$215.00		

NYSDOT Maintenance Facility Relocation & Redevelopment

Market Context & Valuation Analysis

HR&A Analyze. Advise. Act.

September 2015

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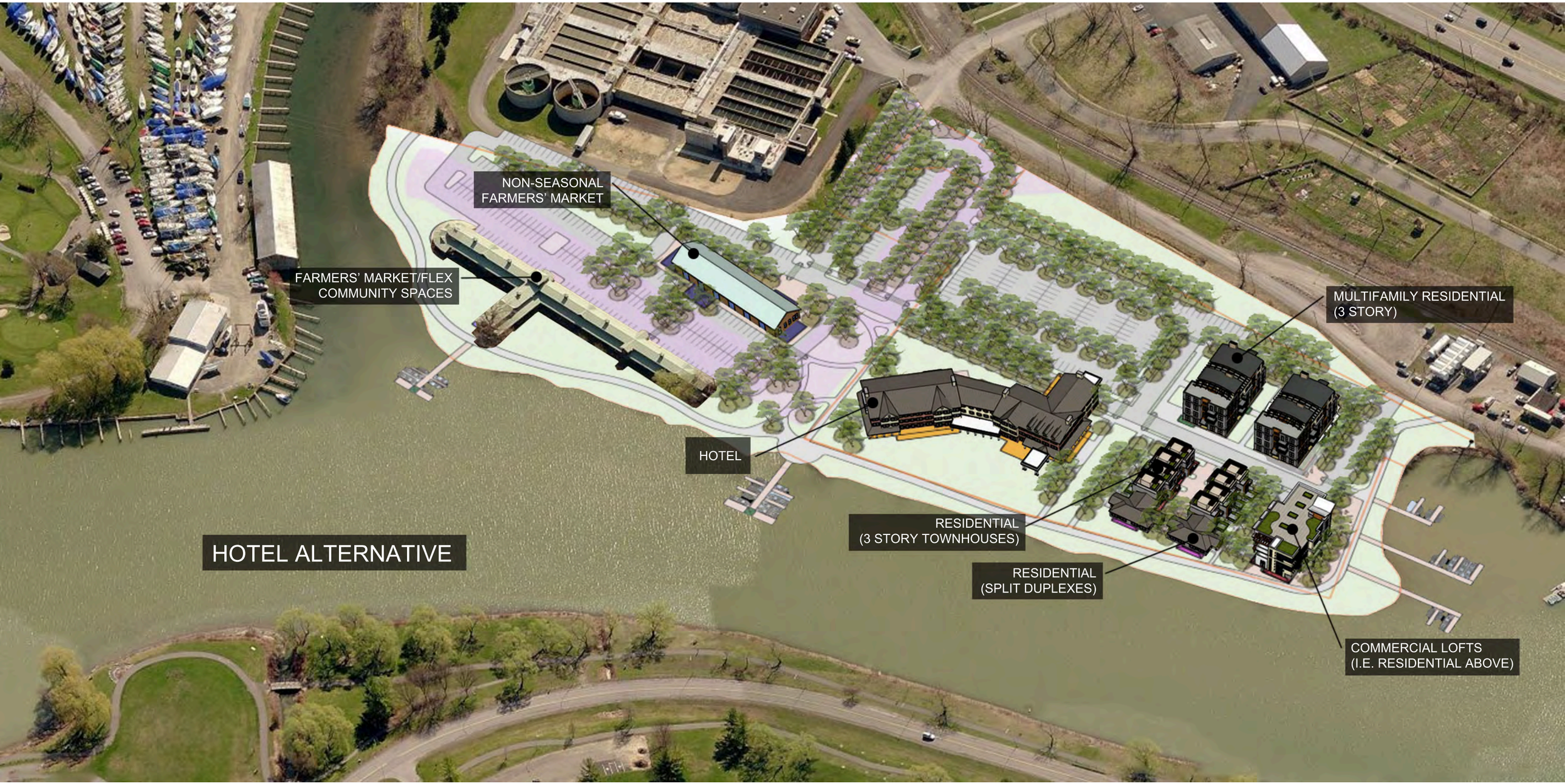
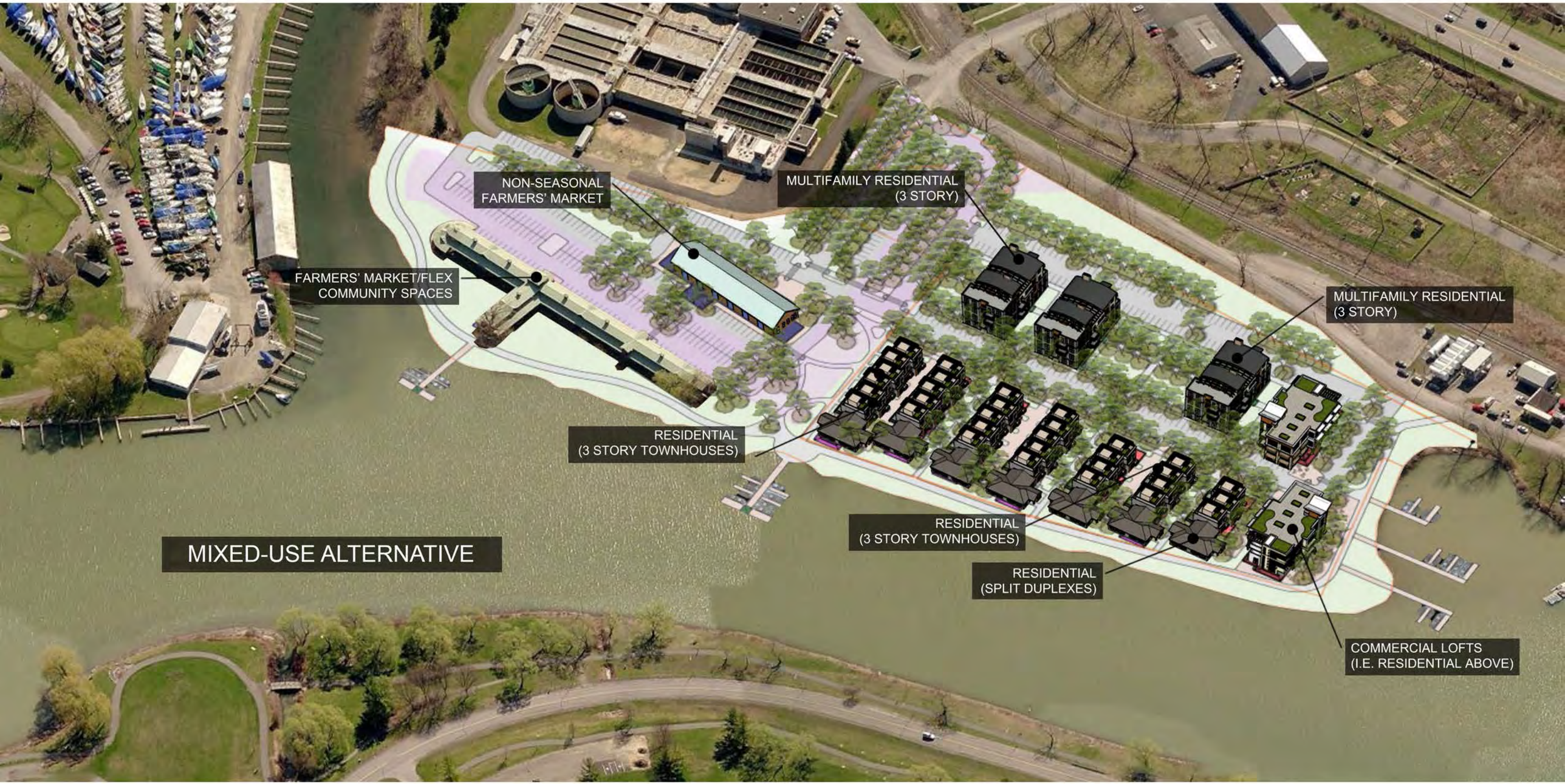
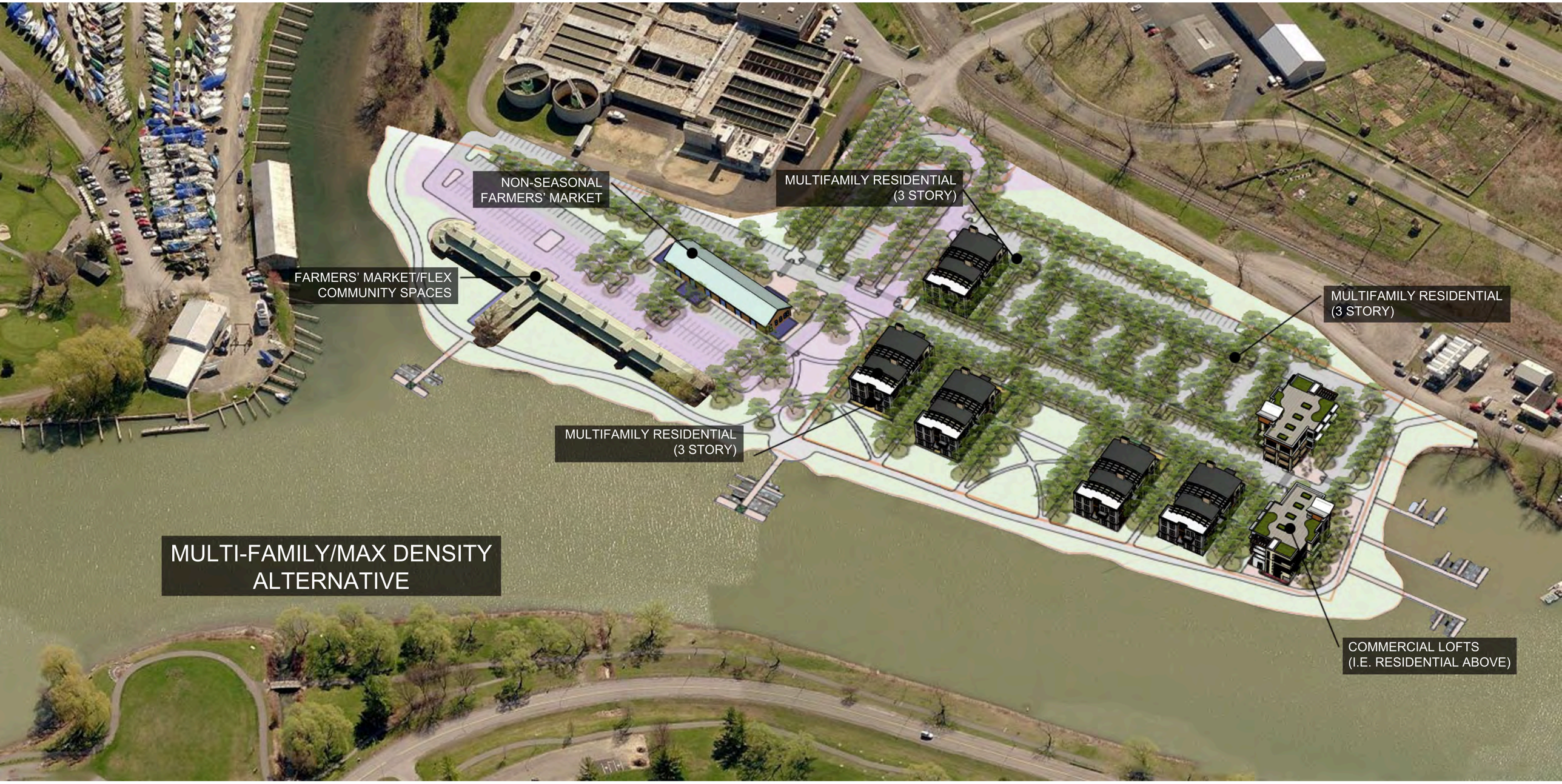
Appendix 7: Architectural Plans


NON-SEASONAL
FARMERS' MARKET
FARMERS' MARKET/FLEX
COMMUNITY SPACES
MULTIFAMILY RESIDENTIAL
(3 STORY)
HOTEL
RESIDENTIAL
(3 STORY TOWNHOUSES)
RESIDENTIAL
(SPLIT DUPLEXES)
COMMERCIAL LOFTS
(I.E. RESIDENTIAL ABOVE)
HOTEL ALTERNATIVE


HOTEL ALTERNATIVE
Google earth
40 ft


NON-SEASONAL FARMERS' MARKET
MULTIFAMILY RESIDENTIAL (3 STORY)
FARMERS' MARKET/FLEX COMMUNITY SPACES
MULTIFAMILY RESIDENTIAL (3 STORY)
RESIDENTIAL (3 STORY TOWNHOUSES)
RESIDENTIAL (3 STORY TOWNHOUSES)
RESIDENTIAL (SPLIT DUPLEXES)
COMMERCIAL LOFTS (I.E. RESIDENTIAL ABOVE)
MIXED-USE ALTERNATIVE


MIXED-USE ALTERNATIVE
Google earth


NON-SEASONAL FARMERS' MARKET
MULTIFAMILY RESIDENTIAL (3 STORY)
FARMERS' MARKET/FLEX COMMUNITY SPACES
MULTIFAMILY RESIDENTIAL (3 STORY)
MULTIFAMILY RESIDENTIAL (3 STORY)
COMMERCIAL LOFTS (I.E. RESIDENTIAL ABOVE)
MULTI-FAMILY/MAX DENSITY ALTERNATIVE


MULTI-FAMILY/MAX DENSITY
ALTERNATIVE
Google earth
40 ft


HOTEL
(124 ROOMS)

MULTI-FAMILY RESIDENTIAL (3 STORIES)


COMMERCIAL LOFTS
(I.E. RESIDENTIAL ABOVE)
SIGNAGE
SIGNAGE
SIGNAGE


RESIDENTIAL
(3 STORY TOWNHOUSES)

RESIDENTIAL (SPLIT DUPLEXES)

Appendix 8:
Traffic Analysis

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Ithaca NYSDOT Site Traffic Impacts

The traffic impact analysis of the three Alternative Land Use Concepts for the Ithaca NYSDOT Site has been conducted for the weekday PM peak and the Saturday peak in the Farmers Market season. The results of the analysis indicate:

- PM Peak: No significant traffic related impacts, that require mitigation, are projected on the adjacent roadway network for the three alternatives.
- Saturday Peak: The Route 13/Third Street intersection is projected to experience high delays, long queues, and poor LOS, representational of conditions outside the threshold of acceptable operations, during the Farmers Market season both before and after the construction of the three alternatives.

Due to the seasonal nature of the Farmers Market and the acceptable operations during all other peak periods, improvements at the Route 13/Third Street intersection may not be justified. If there is a desire to improve the operations of the Route 13/Third Street intersection during the seasonal Saturday Peak the following improvements are recommended:

- Addition of a Right Turn Lane on the Third Street Eastbound Approach
- Offsite Parking and Shuttle to Farmers Market
- A combination of both options

If any of these improvements are implemented, the proposed development is not solely responsible for the costs since the Route 13/Third Street intersection is projected to operate at conditions outside the threshold of acceptable operations prior to the construction of one of the three alternatives. A cost sharing agreement between all stakeholders can be made to cover the costs of the improvements.

The following is a summary of the traffic impact analysis.

Project Overview

- Three Alternative Land Use Concepts (three alternatives) were developed for the repurposing of this site:
  - Concept 2:
    - Commercial Space = 14,160 s.f.
    - Townhouses = 46 units
    - Multifamily Residential = 84 units
  - Hotel Concept:
    - Commercial Space = 6,450 s.f.
    - Hotel = 124 rooms
    - Townhouses = 10 units
    - Multifamily Residential = 52 units
  - Concept 3:
    - Commercial Space = 13,950 s.f.
    - Multifamily Residential = 137 units
- Study Intersections
  - Route 13/Third Street intersection

Trip Generation

- New trips generated by each of the three alternatives were determined using the Institute of Transportation Engineers (ITE) Trip Generation Manual, 9th Edition.
- New trips were generated for the proposed land uses within the three alternatives outlined above.
- AM/PM Peaks
    - The morning and evening peak trip generation was based on the peak hours of adjacent street traffic.
    - The commercial space was assumed to be a High-Turnover (Sit-Down) Restaurant. It was assumed that a restaurant would not be open in the morning peak period.
    - Trip credits were taken for Internal Capture Trips & Multi-modal trips.
    - No pass-by trip credits were assumed since the Farmers Market is not open during the AM and PM peaks and the site cannot be seen from Route 13.
    - The net new vehicle trips to the adjacent transportation network are:

		Enter	Exit	Total
Concept 2	AM Peak	13	53	66
	PM Peak	116	65	181
Hotel Concept	AM Peak	23	58	81
	PM Peak	81	51	132
Concept 3	AM Peak	13	51	64
	PM Peak	113	64	177

    - Based on Trip Generation results, no traffic related impacts are projected on the adjacent roadway network for the three alternatives during the morning peak period.
    - Further analysis of the evening peak period is required to determine if there are any impacts.

- Saturday Peak
    - Trip generation data for the peak hours of adjacent street traffic is unavailable for the Saturday peak; therefore, trips were generated for the peak hours of the generator (proposed site land uses).
    - The commercial space was assumed to be a High-Turnover (Sit-Down) Restaurant.
        - Restaurant is on Saturday evening and not Saturday midday, the peak which was evaluated.
        - Corresponding trip generation rates for Saturday evening were adjusted to Saturday midday using hourly variation in High-Turnover (Sit-Down) Restaurant traffic data from the ITE Trip Generation Manual, 9th Edition.
    - Internal Capture Trip data is not available for Saturdays. Therefore, no Internal Capture Trips were assumed for the Saturday peak.
    - Pass-by trip credits were assumed since it is anticipated that a restaurant would draw traffic from the Farmers Market.
    - Trip credits were taken for Multi-modal trips.
    - The net new vehicle trips to the adjacent transportation network are:

		Enter	Exit	Total
Concept 2	Saturday Peak	77	71	148
Hotel Concept	Saturday Peak	98	84	182
Concept 3	Saturday Peak	60	55	115

    - Further analysis of the Saturday peak period is required to determine if there are any impacts.

Analysis

- The Weekday PM and Farmers Market Saturday peak hours was analyzed.
- Volume Development
    - Background (Base) Conditions
        - PM Peak
            - The Route 13/Third Street intersection PM peak volumes are based on 2008 volume data from the Route 13 Crossings Project.
            - No intersection turning movement counts were conducted for this assessment.
            - It is anticipated that the Estimated Time of Completion (ETC) of the project is 2017.
            - A 0.5% general growth rate per year was applied to the 2008 traffic volumes to account for ambient traffic volume increases between 2008 and 2017 and establish 2017 Background Conditions Volumes.
                - At the time of this analysis no growth rate information was available
        - Saturday Peak
            - The Route 13/Third Street intersection Saturday peak volumes are based on 2004 volume data collected by NYSDOT.
            - No intersection turning movement counts were conducted for this assessment.
            - It is anticipated that the Estimated Time of Completion (ETC) of the project is 2017.
            - Traffic volume data for Route 13 provided from a NYSDOT perpetual traffic counter located just south of 3rd Street indicate that traffic volumes in the area have been decreasing over the last 10 years and that the trend is continuing.
                - No general growth rate per year was applied to the 2004 traffic volumes
                - It was assumed that the 2004 volumes would be representational of 2017 Background Conditions Volumes
    - Trip Distribution & New Trips
        - Route 13/Third Street intersection
            - 40% of the trips will enter/exit from Route 13 to the north
            - 40% of the trips will enter/exit from Route 13 to the south
            - 20% of the trips will enter/exit from Third Street to the east
    - Future (Proposed) Conditions
        - Route 13/Third Street intersection: New trips were applied to the Background Conditions volumes to produce Future Conditions volumes.
- Capacity Analysis
    - Methodology
        - Capacity analysis for this study was conducted using Version 8 of Synchro software.
        - Based on the methods presented in the 2010 Highway Capacity Manual.
    - Results
        - PM Peak
            - Background Conditions: Route 13/Third Street intersection is projected to operate at overall LOS 'B' with all turning movements operating at LOS 'D' or better.
            - Future Conditions:
                - Route 13/Third Street intersection: Projected to operate at overall LOS 'C' with all turning movements operating at LOS 'D' or better for all three alternatives.
                - Access Points: All movements are projected to operate at overall LOS 'a' for all three alternatives.
                - Future Conditions LOS indicates minimal degradations in LOS compared to Background Conditions with conditions within the threshold of acceptable operations.
        - Saturday Peak

- Background Conditions:
    - Route 13/Third Street intersection: Projected to operate at overall LOS 'E', with an average delay per vehicle of 77.5 seconds (borderline LOS 'F' with the Route 13 southbound shared through/right turning movement operating at LOS 'F'.
    - The LOS is representational of conditions outside the threshold of acceptable operations with high delays and significant queuing occurring.
    - The poor operations are attributed to the traffic from the Farmers Market and are seasonally contained to Saturday mornings/early afternoons.
    - During the peak of this period the Route 13/Third Street intersection is operating over its capacity.
        - Capacity is the volume service threshold for turning movements based on factors such as geometry (including the number of lanes) and intersection controls.
        - At "over capacity" operating conditions, traffic flow experiences extremely low travel speeds, poor vehicular progression, extensive delays, and extensive queuing.
- Future Conditions:
    - The three alternatives are projected to cause further degradation of this intersection.
    - Route 13/Third Street intersection: Projected to operate at overall LOS 'F' with the Third Street eastbound shared left/through/right turning movement operating at LOS 'E' and the Route 13 southbound shared through/right turning movement operating at LOS 'F' for all three alternatives.
    - Overall Intersection Delay:
        - Concept 2: 120.1 seconds
        - Hotel Concept: 124.0 seconds
        - Concept 3: 113.6 seconds
    - The delays for the turning movements and the queues are also projected to increase.
    - Typical of an intersection that is operating at "over capacity" conditions.

- Improvements
    - Due to the seasonal nature of the Farmers Market and the acceptable operations during all other peak periods, improvements at the Route 13/Third Street intersection may not be justified
    - If there is a desire to improve the operations of the Route 13/Third Street intersection during the Saturday Peak there must be a decrease in the volume of traffic entering the intersection and/or an addition of capacity (lanes).
    - The results of the Saturday Peak capacity analysis indicate that the Route 13/Third Street intersection is projected to operate at "over capacity" conditions outside the threshold of acceptable operations prior to the construction of the proposed development.
        - If any improvements are implemented to mitigate the poor operations of the Route 13/Third Street intersection the proposed development is not solely responsible for the costs.
    - Multiple improvement alternatives were screened to determine which would be the most feasible.
    - The following two improvements would provide the most cost effective options:
        - Addition of a Right Turn Lane on the Third Street Eastbound Approach
        - Offsite Parking and Shuttle to Farmers Market
    - Addition of a Right Turn Lane on the Third Street Eastbound Approach
        - Addition of a 300' right turn lane on the Third Street eastbound approach would increase the capacity of the approach and intersection.

- Route 13/Third Street intersection: Projected to operate at overall LOS 'D', with an average delay per vehicle of approximately 40 seconds or better, with all turning movements operating at LOS 'E' or better for all three alternatives.
    - Represents conditions within the threshold of acceptable operations
- Intersection is projected to be operating "at capacity" and will likely not be able to accommodate additional growth.
    - In "at capacity" conditions operations are unstable and difficult to predict with reduced speeds, higher delays, and the potential for longer queues.
- The projected operating conditions show a significant improvement compared to both Background and Future Conditions.
- The lane addition is feasible to construct
    - The existing right-of-way is approximately 60' wide and one additional lane could be accommodated within.
- The cost of this would be approximately $510,000.

▪ Offsite Parking and Shuttle to Farmers Market
- A Transportation Demand Management (TDM) strategy to reduce automobile trips.
- This strategy could improve the Route 13/Third Street intersection by decreasing the volume entering the intersection.
- It would provide a seasonal solution to a traffic issue that only occurs on Saturdays during the Farmers Market.
- Costs would be dependent on variables such as parking locations but are anticipated to be significantly less than the construction of additional lanes at the intersection.

▪ Other Improvements
- Other improvements were screened but determined to be non-feasible. These options include:
    - Additional Lanes on the Third Street Eastbound Approach
    - Addition of a Right Turn Lane on the Route 13 Southbound Approach
- Additional Lanes on the Third Street Eastbound Approach
    - An additional left turn lane on the Third Street eastbound approach (in conjunction with the additional right turn lane) may improve the operations at the Route 13/Third Street intersection.
    - Existing right-of-way could not accommodate more than one additional lane and, even if additional right-of-way was purchased, pedestrian facilities, tree lawn areas and insufficient building setback for the B&W Supply building would limit the addition of more lanes on this approach making this option non-feasible.
- Addition of a Right Turn Lane on the Route 13 Southbound Approach
    - The addition of a right turn lane on the Route 13 southbound approach (in conjunction with the additional right turn lane on the Third Street eastbound approach) may improve the operations of the Route 13/Third Street intersection.
    - Route 13/Third Street intersection: Projected to operate at "under capacity" conditions and overall LOS 'C', with an average delay per vehicle of approximately 32 seconds or better, with all turning movements operating at LOS 'D' or better for all three alternatives.
        - This represents conditions within the threshold of acceptable operations.
        - The improvement is not as significant as the improvement between the "Addition of a Right Turn Lane on the Third Street Eastbound Approach" option and Background/Future conditions.
        - The addition of a right turn lane on the Route 13 southbound approach would likely have a similar cost to the addition of a right turn lane on the Third Street eastbound approach.

- The cost/benefit would not be as high as other options.

- Recommended Improvements
  - If there is a desire to improve the operations of the Route 13/Third Street intersection during the seasonal Saturday Peak the following improvements are recommended:
    - Addition of a Right Turn Lane on the Third Street Eastbound Approach
    - Offsite Parking and Shuttle to Farmers Market
    - A combination of both options
  - If additional improvements are still needed at this intersection after the implementation of the recommended improvements the "Addition of a Right Turn Lane on the Route 13 Southbound Approach" option can be revisited in the future.
  - If any improvements are implemented to mitigate the poor operations of the Route 13/Third Street intersection the proposed development is not solely responsible for the costs.
    - A cost sharing agreement between all stakeholders can be made to cover the costs of the improvements.

Conclusion

- A traffic impact analysis was conducted to determine if the three Alternative Land Use Concepts for the Ithaca NYSDOT Site would create traffic related impacts on the adjacent roadway network during the weekday PM peak and the Saturday peak during the Farmers Market season.
- The results of the analysis indicate:
  - PM Peak: No significant traffic related impacts, that require mitigation, are projected on the adjacent roadway network for the three alternatives.
  - Saturday Peak: The Route 13/Third Street intersection is projected to experience high delays, long queues, and poor LOS, representational of conditions outside the threshold of acceptable operations, during the Farmers Market season both before and after the construction of the three alternatives.
- Due to the seasonal nature of the Farmers Market and the acceptable operations during all other peak periods, improvements at the Route 13/Third Street intersection may not be justified.
- If there is a desire to improve the operations of the Route 13/Third Street intersection during the seasonal Saturday Peak the following improvements are recommended:
  - Addition of a Right Turn Lane on the Third Street Eastbound Approach
  - Offsite Parking and Shuttle to Farmers Market
  - A combination of both options
- If any of these improvements are implemented, the proposed development is not solely responsible for the costs since the Route 13/Third Street intersection is projected to operate at conditions outside the threshold of acceptable operations prior to the construction of one of the three alternatives.
  - A cost sharing agreement between all stakeholders can be made to cover the costs of the improvements.