

**Rochester Inner Loop East Reconstruction  
Project Benefit Cost Analysis  
&  
Real Estate Market Analysis**

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# INTRODUCTION

## **Project Purpose**

The proposed Inner Loop East Reconstruction Project (the “Project”) is a transformative urban infrastructure project intended to contribute to on-going the revitalization of Downtown Rochester, New York. The Inner Loop is a trenched expressway encircling Downtown Rochester that carries significantly less traffic than originally planned for and effectively acts as a barrier between downtown and surrounding neighborhoods. By reconstructing a portion of the underutilized expressway into an urban, at-grade, boulevard, the project will catalyze several benefits for the City of Rochester and its residents.

## **Purpose of This Report**

This report serves two purposes. The first is to offer a comprehensive Benefit-Cost Analysis of the Project as a component of the City of Rochester’s application for the TIGER V Discretionary Grant Program. In providing a thorough accounting of benefits and costs, this report is intended to serve as a critical reference point and catalyze decision-making regarding the Project. The methodology employed by this report is fully compliant with Federal TIGER benefit-cost assessment standards as specified in *the Federal Register Vol. 75, No. 104*, and in *OMB Circular A-94: Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs*, and the additional *TIGER 2013 NOFA BCA Guidance* published by the Department of Transportation. The second purpose of this report is to provide a market analysis of potential uses for land created by the Project, and advance feasible development scenarios for the newly created land. In addition to an analysis of development feasibility for the new parcels of land, incremental land value on adjacent parcels generated by the Project is a key economic benefit included in the Benefit-Cost Analysis.

## **Organization of This Report**

**Introduction and Purpose of the Report:** Provides an overview of the Project, its intended outcomes, and the purpose of this report’s assessment.

**Benefit Cost Analysis:** Evaluates the total benefits and costs to society generated by the Inner Loop East Reconstruction Project, including benefits and costs of new real estate development opportunities and value created. Specific sections are:

- Executive summary of project costs and benefits
- Overview of Benefit-Cost Analysis methodology and goals of the analysis
- Detailed description and quantification of project costs, including construction costs and other costs borne by society
- Detailed description and quantification (if applicable) of long-term project benefits, organized by category of benefit:
  - State of Good Repair (Life-cycle cost savings)
  - Economic Competitiveness (Land value generated by new parcels, land value generated in surrounding neighborhoods, economic productivity)
  - Livability (Improved community cohesion, benefits to low-income residents)
  - Safety (Reduction in injuries)

- Sustainability (Increased transportation choices and personal health benefits and reduced criteria pollutants associated with alternative modes)
- Analysis of job creation and near-term economic activity engendered by the project
- Evaluation of project's overall benefit-cost ratio and discussion of results

**Real Estate Market Analysis:** Evaluates the market demand for specific asset classes with a focus on market support for potential new development.

- Overview of the real estate market in Downtown Rochester and macroeconomic development drivers such as demographic and economic trends.
- Residential market analysis: Analysis of market trends, comparable transactions and properties, projected residential demand, and potential absorption on site.
- Commercial office market analysis: Analysis of market trends, comparable transactions and properties, projected office demand, and potential absorption on site.
- Retail market analysis: Analysis of market trends, comparable transactions and properties, projected supportable retail space, and potential absorption on site.
- Hotel market analysis: Analysis of market trends, comparable properties, projected hotel room demand, and potential capture on site.

**Real Estate Development Concepts:** Demonstrates the feasibility of development at the site of the Inner Loop East Project as supported by the findings of the Market Analysis

- Residual land value analysis examining the financial feasibility of each market-supportable use and any gaps that must be filled with alternative sources of funding.
- Recommendations for two market-supportable alternative development program scenario:
  - Scenario 1, projects a more limited development scenario where each new parcel is built to a capacity that would be supported by market-required parking developed only as surface parking.
  - Scenario 2, projects a denser development scenario where real estate programming is projected and developed in tandem with market-required structured parking.

**Surrounding Area Real Estate Value Impact:** Utilizes case study-based analysis of similar projects that catalyzed real estate value increases and estimates land value appreciation rates in the area surrounding the Inner Loop East Reconstruction Project. Specific sections are:

- Introduction to the Study Area, including a map and description of boundaries, considerations in its definition, and current property values and appreciation trends.
- Summary of case study research on how similar projects in other localities impacted real estate values in the surrounding area. Case studies include:
  - Boston's Central Artery
  - Milwaukee's Park East Freeway
  - San Francisco's Central Freeway
  - Portland, OR's Harbor Drive

- San Francisco's Embarcadero Freeway
- Projection of the change in real estate values accruing to the Study Area based upon case study evidence and salient features of the Inner Loop East Reconstruction Project.

# PROJECT BENEFIT COST ANALYSIS

## EXECUTIVE SUMMARY

The City of Rochester, New York, is requesting an appropriation of \$17,700,000 in discretionary TIGER V funding in order to deconstruct the eastern portion of the underutilized Inner Loop expressway. As previously discussed, this portion of the Inner Loop will be replaced by an at-grade urban boulevard. HR&A Advisors, Inc., an economic development consulting firm located in New York, NY, has completed this benefit-cost analysis on behalf of the City of Rochester.

The project matrix below outlines the anticipated economic benefits associated with this implementing this project as opposed to the continuation of baseline conditions.

**Figure 1: Project Matrix**

Current Status / Baseline & Problem to be Addressed	Change to Baseline	Type of Impacts	Population Affected by Impacts	Economic Benefit	Summary of Results	Page Reference in BCA
Inner Loop is a sunken expressway that requires significant repair and maintenance, and encourages travel at higher speeds, increasing probability that accidents result in injury	Removal of eastern portion of Inner Loop and replacement with modern at-grade urban boulevard	(1) Lifecycle maintenance and repair savings (2) Improved safety due to lower travel speeds	(1) City of Rochester (210,855 residents, 2011) and New York State (19.47 million residents, 2011), which pay for maintenance (2) 40 annual auto accident victims who benefit from fewer injuries	(1) Monetized value of lifecycle cost savings (2) Monetized value of prevented injuries	(1) \$34,481,937 in undiscounted benefits. (2) \$13,467,310 in undiscounted benefits	pp. 8, 14-15
As a multi-lane sunken expressway, the Inner Loop acts as a barrier that frustrates intra-city connections and is a disamenity to surrounding neighborhoods	Creation of four connections across new urban boulevard on eastern portion of Inner Loop and improved neighborhood aesthetics	(1) Increased productivity of land due to improved aesthetics and connections (2) Reduced emissions and better health due to mode shifts to walking and bicycling (3) Enhanced productivity by improving access to Downtown employment center	(1) Owners of 911 parcels expected to increase in value (2) 30,293 residents in Greater Center City area (3) Businesses in Downtown Rochester and 7,400 employees who have better access to work	(1) Monetized value of land values increases (2) Not quantified benefit of better health and environment (3) Not quantified benefit of enhanced productivity	(1) \$16,741,870 in undiscounted benefits	pp. 12, 15
The underutilized Inner Loop prevents development of valuable Downtown parcels occupied by infrastructure	Creation of 8.9 acres of developable land due to removal of infrastructure	Increased productivity of land	City of Rochester (210,855 residents in 2011) which owns land	Monetized value of land for mixed-use development project	\$8,037,000 in undiscounted benefits	pp. 11-12

**Baseline**

The trenched Inner Loop expressway was constructed in the late 1950s and early 1960s to facilitate an anticipated increase in automobile traffic within Rochester. The expressway was originally intended to connect to I-390, but this connection was never completed due to neighborhood opposition. Moreover, the population of Rochester has considerably decreased, from a peak of 330,000 in 1950 to approximately 210,000 in 2010.<sup>1</sup> Given these factors, the anticipated volume of traffic for which the Inner Loop was originally planned and built never materialized. The eastern portion of the expressway, between East Main St. and Monroe Ave., is particularly underutilized. This portion of the expressway is redundant to Union and Pitkin Streets, at-grade urban arterials that run parallel to the expressway. In total, there are as many as 12 parallel traffic lanes plus shoulders along much of the length of the Project site. Recent traffic studies have found that this section of the expressway serves just 6,990 vehicles per day south of East Main St. and 10,560 vehicles per day north of Monroe Ave.

**Project Definition and Other Alternatives**

Given the functional obsolescence of the Inner Loop and its deleterious effects on surrounding neighborhoods, the City of Rochester has investigated various options for converting the Inner Loop into an at-grade urban boulevard. Rochester's Vision 2000 Plan (1990) envisioned the Inner Loop's conversion. Several alternatives were considered by the Inner Loop Improvement Study in 2001. Considering the overall cost and complexity of this effort, the Inner Loop Improvement Study (2001) recommended a three phase approach, with the first being the reconstruction of the Inner Loop from Monroe Street to Charlotte Street, with an extension to East Main Street. This alternative, which has evolved into the current proposal, is significantly less expensive and more focused than many other alternatives considered, including a proposal which also included reconstructing the Inner Loop into an at-grade urban boulevard north of East Main Street. An advantage of the current alternative is that it removes the least utilized portion of the Inner Loop and will catalyze several benefits for the surrounding neighborhoods and City as a whole. The Center City Master Plan (2003) strongly emphasized the reconstruction of the eastern portion of the Inner Loop as key to achieving multiple planning objectives. The City of Rochester subsequently conducted a set of engineering and feasibility studies, confirming the current project's feasibility and beneficial economic development outcomes. The outcomes of the implementation of this project will inform future plans for the remainder of the Inner Loop.

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<sup>1</sup> Inner Loop East Reconstruction Project, TIGER Application, 2011.

### Project Costs

The reconstruction of the eastern portion of the Inner Loop into an at-grade urban boulevard will require a capital investment of \$24.51 million (2013 \$), which assuming three percent annual inflation, equates to \$26.00 million in 2015 dollars. In addition to the capital construction costs, annual maintenance and operation costs totaling \$4.67 million (2015 \$) over 31 years will be incurred to maintain the new infrastructure, which represents a cost savings over maintaining the current infrastructure. In order to complete the project, the City of Rochester requests \$17,700,000 in TIGER V Discretionary funding. This project is a high-priority for the City, and the City proposes to match 25% of the funds needed, a match equivalent to \$5,900,000. The discounted value of construction and project maintenance represent the project costs against which project benefits are measured in this analysis. Project costs and proposed funding sources are summarized below.

**Figure 2: Project Sources and Uses of Funds (2015 \$)**

Project Costs	
	Cost (2015 \$)*
Project Construction	\$26,000,384
Total Project Maintenance Costs (2015-2045)	\$4,668,210

\* Assumes 3% inflation annually, 2013-2015.

Project Capital Funding		
	Capital Costs (2015\$)	Funding (2015 \$)
Design Costs (Already Expended or Funded)		\$2,400,000
City of Rochester Match		\$5,900,000
<u>Requested TIGER Grant</u>		<u>\$17,700,000</u>
<b>Total Funding</b>	(\$26,000,000)	\$26,000,000

### Long-Term Benefits

The Inner Loop East Reconstruction Project is expected to yield significant long-term benefits to the City of Rochester and its residents. **Figure 3** summarizes these benefits.

- **State of Good Repair:** The Inner Loop is in a deteriorated condition. Conversion to an urban boulevard offers life-cycle costs savings by avoiding costly bridge, retaining wall and other structural repairs. Rather than paying to maintain unnecessary infrastructure, funds will be freed for a higher public purpose.
- **Economic Competitiveness:** Reconstructing this portion of the Inner Loop will increase the productivity of land in the surrounding area. The project will unlock the development potential of newly created parcels currently in the Inner Loop's right-of-way, and enhance the value of existing parcels in the surrounding neighborhood due to better connections to Downtown Rochester and improved aesthetic quality of the neighborhood.
- **Livability:** Reconstructing the Inner Loop into an urban boulevard will re-establish connections between Downtown Rochester and desirable East Side neighborhoods. This improved neighborhood condition will disproportionately benefit surrounding low-income areas and enable the City to further several guiding principles of the Center City Master Plan, including pedestrian friendliness, connectivity, and beautiful gateways. The improved quality of the Downtown built environment will enhance Downtown Rochester as a place to live, work, play, and invest.

- **Safety:** Reconstructing the Inner Loop will remove below-grade infrastructure and enable the implementation of modern roadway design. These improvements will improve safety by promoting slower driving speeds that reduce the severity of accidents.<sup>2</sup>
- **Sustainability:** By promoting the use of alternative transportation modes, the Project will reduce vehicle miles traveled and associated criteria pollutants, enhancing environmental quality in the short- and long-terms.

**Figure 3: Summary of Project Benefits**

Category of Benefit	Total Discounted Benefits (3%)	Total Discounted Benefits (7%)
<b>State of Good Repair</b>		
Lifecycle Cost Savings	\$25,959,498	\$19,116,659
<b>Economic Competitiveness</b>		
Land Value - New Development Parcels	\$7,354,994	\$6,560,586
Land Value - Increased Neighborhood Amenity	\$15,321,183	\$13,666,353
Economic Productivity	Not Quantified	Not Quantified
<b>Livability</b>		
Improved Community Cohesion	Not Quantified	Not Quantified
Benefits to Low-Income Neighborhoods	Not Quantified	Not Quantified
<b>Safety</b>		
Prevented Injuries, Fatalities, and Accidents	\$8,399,403	\$4,980,024
<b>Sustainability</b>		
Multi-Modal Transportation Choices	Not Quantified	Not Quantified
<b>Total</b>		
All Benefits	\$57,035,077	\$44,323,622

**Discount Rate and Evaluation Period**

This analysis uses a real discount rate of 3% and 7% in accordance with the guidance provided by OMB circulars. All values are presented in 2013 constant dollars to allow for valid comparisons between categories of costs and benefits.

In accordance with Department of Transportation guidance to project benefits and costs at least twenty years after the base year, this analysis projects the costs and benefits of the Inner Loop East Reconstruction project for a 31-year period. An additional year was included beyond a standard 30-year analysis as

<sup>2</sup> Draft Project Scoping Report - Inner Loop Improvement Project, 2011.

many recurring costs would be incurred in that 31<sup>st</sup> year and thus it was decided to include that year to accurately reflect the true life-cycle costs of the Project and No-Build Scenario.

**Benefit-Cost Ratio**

**The benefits of the Inner Loop East Reconstruction Project are estimated to be 1.88 to 2.20 times greater the costs of the project.** Construction, maintenance and operations, and travel delay costs are offset by lifecycle cost savings, land value generated in new and existing neighborhood parcels, and accident injury reductions. Overall, the discounted benefits of the project are estimated to exceed the costs by \$31,057,879 when using a 3% discount rate and \$20,746,355 million when using a 7% discount rate.

**Figure 4: Benefit-Cost Analysis Results**

	<b>3% Discount Rate</b>	<b>7% Discount Rate</b>
Total Quantified Benefits	\$57,035,077	\$44,323,622
Total Quantified Costs	\$25,897,946	\$23,530,278
Total Benefits Less Costs	\$31,137,132	\$20,793,344
<b>Benefit Cost Ratio</b>	<b>2.20</b>	<b>1.88</b>

**Job Creation and Near-Term Stimulus**

The Inner Loop East Reconstruction project will create 319 job-years, supporting economic recovery in the City of Rochester and surrounding region. 198 job-years will be created by the end of 2015, hastening the recovery of jobs in sectors related to the construction industry that were especially hard hit by the Great Recession.

**Figure 5: Summary of Job Creation Benefits**

	<b>Construction Costs Expended</b>	<b>Job-Years Created*</b>
<b>Total</b>	\$24,507,856	319

\*Based upon 2011 Council of Economic Advisers estimate that \$76,923 in transportation infrastructure spending creates one job-year.

**PROJECT COSTS**

**Total Project Costs (Construction and Maintenance):** \$25,897,946 (3% Discount Rate) and \$23,530,278 (7% Discount Rate)

**Project Construction:** \$23,562,417 (3% Discount Rate) and \$22,409,424 (7% Discount Rate)

The Inner Loop East Reconstruction Project is anticipated to cost \$24,507,856 (2013 \$). Primary categories of costs are displayed below in **Figure 6**. A detailed schedule of costs is included in the “Calculation Summaries” section of this document beginning on page 17.

**Figure 6: Detailed Construction Costs**

Category	Cost 2013\$
Full Depth Pavement Reconstruction (2014-2016)	\$23,210,616
Full Depth Pavement Reconstruction 2014 Expenditure	\$2,321,062
Full Depth Pavement Reconstruction 2015 Expenditure	\$11,605,308
Full Depth Pavement Reconstruction 2016 Expenditure	\$9,284,246
<u>New Traffic Signal Installation (2016)</u>	<u>\$1,297,240</u>
<b>Total Project Cost</b>	<b>\$24,507,856</b>

**Project Maintenance:** \$2,335,529 (3% Discount Rate) and \$1,120,854 (7% Discount Rate)

Maintaining the new urban boulevard created after the removal of the eastern portion of the Inner Loop is anticipated to cost \$4,400,245 (2013 \$) over 31 years. These costs consist of milling and resurfacing of the reconstructed streets on a 15-year cycle, and crack sealing and striping of the streets on a 3-year cycle. A summary of these costs is presented below in **Figure 7**. A detailed schedule of costs is included in the “Calculation Summaries” section of this document beginning on page 17.

**Figure 7: Detailed Project Maintenance and Repair Costs**

Category	Quantity	Cost per Application	Total Cost 2013\$
Mill and Resurface City Streets	2	\$1,875,506	\$3,751,011
<u>Crack Sealing / Striping</u>	8	\$81,153	<u>\$649,224</u>
<b>Total Project Cost</b>			<b>\$4,400,235</b>

## LONG-TERM BENEFITS

**Total Project Benefits:** \$57,035,077 (3% Discount Rate) and \$44,323,622 (7% Discount Rate)

### State of Good Repair

**Avoided Maintenance and Bridge Repairs:** \$25,959,498 (3% Discount Rate) and \$19,116,659 (7% Discount Rate)

Maintaining the reconfigured urban boulevard created by the removal of the Inner Loop is estimated to be significantly less expensive in the long run than continuing to maintain and repair the current infrastructure. The lifecycle costs of maintaining the current infrastructure are estimated to be \$38,882,173, versus \$4,400,235 for maintaining the current infrastructure, a cost savings of \$34,481,937. The large costs in the no build scenario owe to the pressing need for full depth pavement reconstruction for the adjacent City streets and Inner Loop itself, as well as significant maintenance and repair work for the Monroe Avenue, Broad Street, and East Avenue Bridges, and rehabilitation of the Inner Loop’s retaining walls. These bridges and retaining walls will be removed as part of the Project, obviating the need for their maintenance. A summary of avoided maintenance costs is presented below in **Figure 8**. A detailed schedule of costs is included in the “Calculation Summaries” section of this document beginning on page 17.

**Figure 8: Detailed No Build Maintenance and Repair Costs**

Category	Quantity	Cost per Application	Total Cost (2013\$)
City Streets Full Depth Pavement Reconstruction	1	\$11,863,934	\$11,863,934
City Streets Mill and Resurface	1	\$1,501,523	\$1,501,523
City Streets Crack Sealing / Striping	8	\$74,752	\$598,018
Inner Loop Full Depth Pavement Reconstruction	1	\$9,001,847	\$9,001,847
Inner Loop Mill and Resurface	1	\$2,023,708	\$2,023,708
Inner Loop Crack Sealing / Striping	8	\$49,149	\$393,192
New Signal Installation	1	\$1,945,860	\$1,945,860
Monroe Bridge Joint Repair	2	\$93,243	\$186,486
Monroe Bridge Deck Inlay	2	\$318,518	\$637,037
Monroe Bridge Concrete and Steel Rehab	1	\$267,107	\$267,107
Monroe Bridge Washing	15	\$4,135	\$62,031
Broad Bridge Rehabilitation	1	\$2,328,204	\$2,328,204
Broad Bridge Painting	3	\$180,213	\$540,639
Broad Bridge Joint Repair	2	\$118,108	\$236,215
Broad Bridge Deck Inlay	1	\$424,121	\$424,121
Broad Bridge Concrete and Steel Rehab	1	\$382,817	\$382,817
Broad Bridge Washing	13	\$4,207	\$54,687
East Bridge Rehabilitation	1	\$1,096,117	\$1,096,117
East Bridge Painting	3	\$180,213	\$540,639
East Bridge Bearing Lube	3	\$46,939	\$140,818
East Bridge Joint Repair	2	\$82,883	\$165,765
East Bridge Deck Inlay	1	\$283,599	\$283,599
East Bridge Concrete and Steel Rehab	1	\$363,252	\$363,252
East Bridge Washing	13	\$4,207	\$54,687
Wall Surface Rehabilitation 1	1	\$2,727,452	\$2,727,452
Wall Surface Rehabilitation 2	1	\$426,784	\$426,784
Wall Surface Rehabilitation 3	1	\$635,635	\$635,635
<b>Total Maintenance Cost</b>			<b>\$38,882,173</b>

**Economic Competitiveness**

**Land Value Generated from New Parcels:** \$7,354,994 (3% Discount Rate) and \$6,560,586 (7% Discount Rate)

HR&A Advisors conducted a real estate market analysis to evaluate the feasibility of development on at-grade development parcels created as part of the Project. The market analysis examined macroeconomic development drivers such as demographic and economic trends, as well as the demand for residential, office, retail, and hotel uses in the Rochester region and specific demand as related to the Project site. Using a stabilized cash-flow residual land value analysis, **HR&A found that based on the financial feasibility of market-supportable uses, the value of the parcels generated by the Project totals between \$8.0 and \$11.5**

*million*. For the purpose of this Benefit-Cost Analysis, the more conservative \$8.0 million figure was used. For more details on this analysis, see the Real Estate Market section of this report on page 71.

**Land Value Generated from Neighborhood Amenity Effects:** \$15,321,183 (3% Discount Rate) and \$13,666,353 (7% Discount Rate)

To examine the impacts of urban highway removal HR&A examined four cities that have removed portions of their urban highways and replaced them with pedestrian friendly, multi-modal boulevards. The principal finding of these case studies is that property values in areas proximate to removed highways increase over time and typically at higher rates than the rest of the City. Based upon these studies **HR&A conservatively estimates that the Project will result in a 5% increase in land value for the parcels in the study area** starting with the announcement of the project and ending in project completion. For the purpose of modeling benefits, this report includes the increase in land value only once in the year 2016. An estimated 5% increase is significantly more conservative than the value increases seen in the case study research. For more details on this analysis, see the Surrounding Area Real Estate Market Value Impact section on page 131.

**Economic Productivity:** Not Quantified

Currently, there are only four connection points between Downtown and the East Side along the 0.8 mile length of the eastern portion of the Inner Loop. The distance between these access points likely limits the number of commuters who bike or walk between the areas. The project will enhance access to Downtown by providing three additional access points. This increase, as well as the construction of bicycle lanes, will lead to an increase in the number of people who could bike or walk to work. Increasing these non-motorized vehicle forms of transportation numbers will help reduce the number of vehicles on the road, thereby decreasing congestion and commute times, as well as increase the number of people who are able to access jobs in these areas.

Enhancing access to Downtown Rochester, which is defined as the area located within the Inner Loop, will improve regional productivity by enhancing the available labor pool for area businesses. Less than one percent of the nearly 34,000 people who work within the Inner Loop live within the Inner Loop. However, approximately 11% of all downtown workers live in the three zip codes to the east of the Inner Loop that would be directly impacted by the proposed Inner Loop project. Furthermore, 13% of people who live downtown work in one of the three zip codes to the east of the Inner Loop. In total, this project would grant approximately 7,400 residents who live and work near the Inner Loop better access to their place of employment.<sup>3</sup>

By making Downtown more accessible to the adjacent neighborhoods and the surrounding area, the removal of the Inner Loop East will help to increase the number of people who can access downtown Rochester and its jobs as well as reduce current employees' commute times. By doing this, the Project will help to increase the area's labor shed. More people will have access to this larger job market because of the increased connectivity, which will lead to increases in economic productivity for the area.

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<sup>3</sup> U.S. Census Bureau, OnTheMap, LEHD Origin-Destination Employment Statistics.

## **Livability**

### ***Improved Community Cohesion: Not Quantified***

The urban boulevard and associated mixed-use development envisioned for this project will transform an expressway that was previously a barrier or “moat” to Rochester’s downtown into a complete neighborhood with ample connections between Downtown Rochester and the adjacent East Side neighborhoods. This redevelopment will bring the two neighborhoods together to help create more cohesion between the areas to the east of the Inner Loop and Downtown Rochester.

Complete streets featuring pedestrian and bicycle facilities and attractive urban design and landscaping will also improve the neighborhood’s aesthetics. Aesthetic improvements will create a consistent identity for the area and will make the area a more inviting place for pedestrians, which will help to activate ground floor retail spaces in the new development and in adjacent existing spaces. A recent study found that, when controlling for other factors, mixed-use neighborhoods have lower rates of crime than commercial only zones.<sup>4</sup> This new, more walkable, mixed-use neighborhood may help to reduce crime in the Inner Loop East area and in Downtown Rochester by bringing in more foot traffic and activity.

### ***Benefits to Low-Income Neighborhoods: Not Quantified***

Livability benefits of the Inner Loop East Reconstruction Project will disproportionately accrue to residents with household incomes below the median of the County and nation as a whole. Taking the median income of each census tract surrounding the Inner Loop and weighting it by its population size produces a weighted median income of \$24,339. This is less than half of Monroe County’s median income of \$52,260, as well as the United States’ median of \$52,762.<sup>5</sup> Improving connectivity in the area will increase access to jobs that are located downtown, and also promote job creation along the newly developed boulevard. Infill development facilitated by the project will provide valuable new permanent job opportunities for nearby low-income residents. Increased access to work and levels of amenities will improve the area for its low-income residents. Furthermore, increasing non-motorized modes of transportation can decrease transportation costs, making the neighborhood more affordable for low-income residents.

**Figure 10: Median Income, 2011**

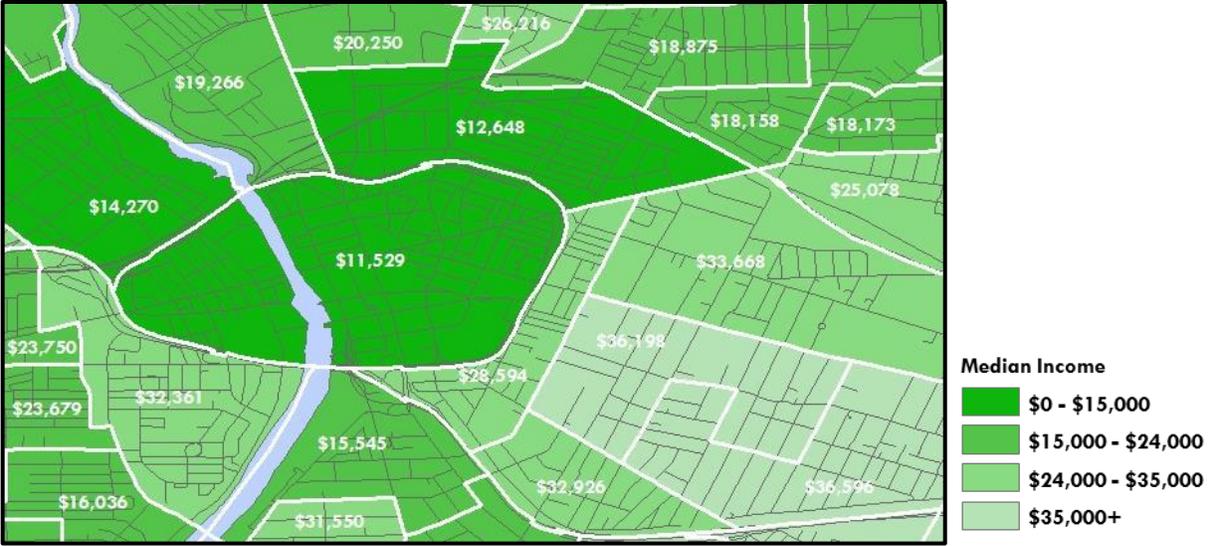
	<b>Median Income</b>
Downtown and Surrounding Area	\$24,399
Monroe County	\$52,260
New York State	\$55,246
United States	\$52,762

Source: U.S. Census Bureau

**Figure 11: Median Income by Census Tract**

<sup>4</sup> James M. Anderson, et al., “Reducing Crime by Shaping the Built Environment with Zoning: An Empirical Study of Los Angeles.” University of Pennsylvania Law Review, Vol. 161, No. 699, 2013.

<sup>5</sup> U.S. Census Bureau



Source: U.S. Census Bureau, HR&A Advisors Analysis

In general terms, the suburbs of Rochester are home to the area’s wealthier residents. Lower-income residents reside closer to Downtown. Following national trends of migration back to cities, Rochester’s downtown population grew by 11.5% between 2000 and 2010.<sup>6</sup> This project capitalizes on this recent trend of growing downtowns by creating value and attempting to lower income disparities in the Rochester metropolitan area.

**Safety**

**Prevented Injuries, Fatalities, and Accidents:** \$8,399,403 (3% Discount Rate) and \$4,980,024 (7% Discount Rate)

Although the amount of traffic moving through the area is not anticipated to decrease, the boulevard will have a lower design speed than the existing expressway. Additionally, converting the frontage roads from separated one-way streets to a single two-way street will reduce speeds and the severity of accidents. For these reasons, although the number of accidents is not projected to decrease, the severity of the accidents will be reduced. Of the prior-years’ accidents that occurred along the expressway, 32.5% resulted in personal injuries while accidents on the two adjacent city streets, Pitkin and Union, experienced only 7% and 12% injuries, respectively. By eliminating the high-speed expressway, the severity of future accidents is expected to emulate those along the existing low speed city streets, estimated to be the average of the two streets, or 9.5%.

**Sustainability**

**Multi-Modal Transportation Choices:** Not Quantified

Increased connectivity and access to downtown through new cross streets, as well as a physically-separated bicycle facility along the newly constructed boulevard, will increase the number of people who choose to bike and walk into and out of Downtown for both work and leisure. The physically-separated

<sup>6</sup> U.S. Census Bureau

bicycle facility and lack of a highway barrier will make the area more amenable to multimodal transportation, likely shifting the number of people who choose to use non-auto modes to commute to work or for other trip purposes. Due to difficulties in modeling this behavioral switch, estimates of mode switching are not quantified. Benefits of increased multimodal transportation options include enhanced air quality and public health.

Switching to non-auto modes will lead to a reduction in emissions for the area. The switch in travel modes will result in fewer vehicle miles traveled, and a corresponding decline in emissions including carbon monoxide, carbon dioxide, mono-nitrogen oxides, and particulate matter. The increase in area vegetation through enhanced streetscaping will help mitigate the emissions from cars by naturally collecting and filtering out airborne pollutants. Both the reduction in emissions and the increase in vegetation to filter pollutants out of the air will improve overall area air quality. Air quality improvements are vital for public health. Air pollution can cause various health complications, including respiratory and heart diseases, as well as lung cancer.<sup>7</sup> According to the World Health Organization, respiratory and cardiovascular health is better when air pollution is lower in a city.<sup>8</sup>

Other public health benefits from the Inner Loop project come from increases in physical activity. Improving connections and re-stitching the street and pedestrian grids will encourage more people to bicycle and walk in the area, both of which can help to improve health and lower the risks of weight gain, diabetes, and heart disease.<sup>9</sup> Health benefits from an increase in the number of people walking and bicycling include benefits for not only individuals who are now active, but also a reduction in costs to society through savings in medical costs and a reduction in the number of hospitalizations due to healthier lifestyles.

These sustainability and health benefits may be slightly offset by additional travel delay costs estimated for this project. By removing the highway, this project may add an additional 2.2 seconds of travel time per vehicle on the system. Despite this additional travel delay and the corresponding slight increase in emissions, a net reduction in vehicle miles traveled is anticipated due to the reduction in circuitous routes caused by the one-way frontage streets, as well as an increase in multimodal transportation and corresponding decrease in vehicle miles traveled by travelers who switch modes. Although there may be a slight increase in the vehicular miles traveled for those who continue commuting by car, the project's overall effect on sustainability is anticipated to be a net benefit.

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<sup>7</sup> World Health Organization, "Air quality and health." <http://www.who.int/mediacentre/factsheets/fs313/en/>.

<sup>8</sup> Ibid.

<sup>9</sup> Eloisa Raynault and Ed Christopher, "How Does Transportation Affect Public Health?" (Federal Highway Administration, Public Roads, Vol. 76, No. 6. May/June 2013). <https://www.fhwa.dot.gov/publications/publicroads/13mayjun/05.cfm>

## BENEFIT-COST ANALYSIS

The quantified benefits of the Inner Loop East Reconstruction Project are estimated to be between 1.88 to 2.20 times greater the quantified costs of the project. As described in more detail throughout this report, lifecycle cost savings, land value generated in new and existing neighborhood parcels, and accident reductions offset the costs incurred from construction, maintenance and operations. Overall, the discounted benefits of those quantified in this project are estimated to exceed the costs by \$31,057,879 when using a 3% discount rate and \$20,746,355 million when using a 7% discount rate.

This analysis likely underestimates the project's true net benefits as several additional categories of benefits, including enhanced economic productivity due to better access to downtown Rochester, improved community cohesion, and enhanced multi-modal transportation choices, are not quantified by this analysis.

**Figure 12: Benefit-Cost Analysis Results**

	<b>3% Discount Rate</b>	<b>7% Discount Rate</b>
Total Quantified Benefits	\$57,035,077	\$44,323,622
Total Quantified Costs	\$25,897,946	\$23,530,278
Total Benefits Less Costs	\$31,137,132	\$20,793,344
<b>Benefit Cost Ratio</b>	<b>2.20</b>	<b>1.88</b>

## JOB CREATION AND NEAR-TERM STIMULUS

Job creation continues to be a priority of paramount importance for governments across the United States as the nation continues to emerge from the Great Recession. The Inner Loop East Reconstruction project will create both construction and design and engineering jobs in Rochester. In total, the Project will create 319 job-years, supporting economic recovery in the City of Rochester and surrounding region. Of these, 198 job-years will be created by the end of 2015, hastening the recovery of jobs in sectors related to the construction industry that were especially hard hit by the Great Recession. New jobs in Rochester will create additional spending in the regional economy, benefitting regional businesses.

**Figure 13: Summary of Job Creation Benefits**

<b>Quarter</b>	<b>Construction Costs Expended</b>	<b>Job-Years Created*</b>
Q4 2014	\$2,321,062	30
Q1 2015	\$1,290,255	17
Q2 2015	\$5,161,019	67
Q3 2015	\$5,161,019	67
Q4 2015	\$1,290,255	17
Q1 2016	\$464,212	6
Q2 2016	\$4,177,911	54
Q3 2016	\$4,177,911	54
<u>Q4 2016</u>	<u>\$464,212</u>	<u>6</u>
<b>Total</b>	<b>\$24,507,856</b>	<b>319</b>

\*Based upon 2011 Council of Economic Advisers estimate that \$76,923 in transportation infrastructure spending creates one job-year.

## **CALCULATION SUMMARIES**

The following pages present the detailed modeling work that underpins this analysis.

- A project summary showing the total costs and benefits by category is presented first, followed by the detailed annual financial analysis.
- Summaries of each of the six types of quantified benefits and costs follow. These summaries are backed by the detailed assumptions and cost estimates from which the quantified estimates of benefits and costs are derived.

**Summary of Project Benefits and Costs**

Year	Project Year	Costs			Benefits			Benefits Less Costs	
		Construction Costs	Maintenance & Repair Costs	Total Costs	Lifecycle Cost Savings	Economic Competitiveness	Safety	Total Benefits	Total Benefits Less Costs
2014	0	(\$2,321,062)	\$0	(\$2,321,062)	\$0	\$0	\$0	\$0	(\$2,321,062)
2015	1	(\$11,605,308)	\$0	(\$11,605,308)	\$3,831,686	\$0	\$0	\$3,831,686	(\$7,773,622)
2016	2	(\$10,581,486)	\$0	(\$10,581,486)	\$0	\$0	\$0	\$0	(\$10,581,486)
2017	3	\$0	\$0	\$0	\$136,450	\$24,778,870	\$464,390	\$25,379,710	\$25,379,710
2018	4	\$0	(\$81,153)	(\$81,153)	(\$81,153)	\$0	\$464,390	\$383,237	\$302,084
2019	5	\$0	\$0	\$0	\$12,549	\$0	\$464,390	\$476,939	\$476,939
2020	6	\$0	\$0	\$0	\$18,879,473	\$0	\$464,390	\$19,343,863	\$19,343,863
2021	7	\$0	(\$81,153)	(\$81,153)	(\$68,604)	\$0	\$464,390	\$395,786	\$314,633
2022	8	\$0	\$0	\$0	\$0	\$0	\$464,390	\$464,390	\$464,390
2023	9	\$0	\$0	\$0	\$136,450	\$0	\$464,390	\$600,840	\$600,840
2024	10	\$0	(\$81,153)	(\$81,153)	(\$81,153)	\$0	\$464,390	\$383,237	\$302,084
2025	11	\$0	\$0	\$0	\$279,656	\$0	\$464,390	\$744,046	\$744,046
2026	12	\$0	\$0	\$0	\$123,901	\$0	\$464,390	\$588,291	\$588,291
2027	13	\$0	(\$81,153)	(\$81,153)	\$283,408	\$0	\$464,390	\$747,798	\$666,645
2028	14	\$0	\$0	\$0	\$0	\$0	\$464,390	\$464,390	\$464,390
2029	15	\$0	\$0	\$0	\$136,450	\$0	\$464,390	\$600,840	\$600,840
2030	16	\$0	(\$1,875,506)	(\$1,875,506)	(\$1,107,550)	\$0	\$464,390	(\$643,160)	(\$2,518,666)
2031	17	\$0	\$0	\$0	\$12,549	\$0	\$464,390	\$476,939	\$476,939
2032	18	\$0	\$0	\$0	\$123,901	\$0	\$464,390	\$588,291	\$588,291
2033	19	\$0	(\$81,153)	(\$81,153)	(\$68,604)	\$0	\$464,390	\$395,786	\$314,633
2034	20	\$0	\$0	\$0	\$0	\$0	\$464,390	\$464,390	\$464,390
2035	21	\$0	\$0	\$0	\$11,223,638	\$0	\$464,390	\$11,688,028	\$11,688,028
2036	22	\$0	(\$81,153)	(\$81,153)	(\$81,153)	\$0	\$464,390	\$383,237	\$302,084
2037	23	\$0	\$0	\$0	\$12,549	\$0	\$464,390	\$476,939	\$476,939
2038	24	\$0	\$0	\$0	\$123,901	\$0	\$464,390	\$588,291	\$588,291
2039	25	\$0	(\$81,153)	(\$81,153)	\$283,408	\$0	\$464,390	\$747,798	\$666,645
2040	26	\$0	\$0	\$0	\$1,700,223	\$0	\$464,390	\$2,164,613	\$2,164,613
2041	27	\$0	\$0	\$0	\$136,450	\$0	\$464,390	\$600,840	\$600,840
2042	28	\$0	(\$81,153)	(\$81,153)	(\$81,153)	\$0	\$464,390	\$383,237	\$302,084
2043	29	\$0	\$0	\$0	\$12,549	\$0	\$464,390	\$476,939	\$476,939
2044	30	\$0	\$0	\$0	\$123,901	\$0	\$464,390	\$588,291	\$588,291
2045	31	\$0	(\$1,875,506)	(\$1,875,506)	(\$1,521,785)	\$0	\$464,390	(\$1,057,395)	(\$2,932,900)
<b>Total</b>	<b>1-31</b>	(\$24,507,856)	(\$4,400,235)	(\$28,908,091)	\$34,481,937	\$24,778,870	\$13,467,310	\$72,728,117	\$43,820,026
<b>NPV 3% Discount Rate</b>		(\$23,562,417)	(\$2,335,529)	(\$25,897,946)	\$25,959,498	\$22,676,176	\$8,399,403	\$57,035,077	\$31,137,132
<b>NPV 7% Discount Rate</b>		(\$22,409,424)	(\$1,120,854)	(\$23,530,278)	\$19,116,659	\$20,226,939	\$4,980,024	\$44,323,622	\$20,793,344

**Inner Loop East Reconstruction Project  
Detailed Annual Model  
Page 1**

Years	Total	2014	2015	2016	2017	2018	2019	2020	2021
<b>Costs</b>									
Construction Costs	(\$24,507,856)	(\$2,321,062)	(\$11,605,308)	(\$10,581,486)	\$0	\$0	\$0	\$0	\$0
Maintenance and Repair Costs	(\$4,400,235)	\$0	\$0	\$0	\$0	(\$81,153)	\$0	\$0	(\$81,153)
<b>Total Costs</b>	<b>(\$28,908,091)</b>	<b>(\$2,321,062)</b>	<b>(\$11,605,308)</b>	<b>(\$10,581,486)</b>	<b>\$0</b>	<b>(\$81,153)</b>	<b>\$0</b>	<b>\$0</b>	<b>(\$81,153)</b>
<b>Benefits</b>									
<i>State of Good Repair</i>									
<u>Lifecycle Cost Savings</u>	\$34,481,937	\$0	\$3,831,686	\$0	\$136,450	(\$81,153)	\$12,549	\$18,879,473	(\$68,604)
Subtotal	\$34,481,937	\$0	\$3,831,686	\$0	\$136,450	(\$81,153)	\$12,549	\$18,879,473	(\$68,604)
<i>Economic Competitiveness</i>									
Newly Created Parcels Value	\$8,037,000	\$0	\$0	\$0	\$8,037,000	\$0	\$0	\$0	\$0
<u>Existing Parcel Value Increase</u>	\$16,741,870	\$0	\$0	\$0	\$16,741,870	\$0	\$0	\$0	\$0
Subtotal	\$24,778,870	\$0	\$0	\$0	\$24,778,870	\$0	\$0	\$0	\$0
<i>Safety</i>									
<u>Prevented Injuries &amp; Accidents</u>	\$13,467,310	\$0	\$0	\$0	\$464,390	\$464,390	\$464,390	\$464,390	\$464,390
Subtotal	\$13,467,310	\$0	\$0	\$0	\$464,390	\$464,390	\$464,390	\$464,390	\$464,390
<b>Total Benefits</b>	<b>\$72,728,117</b>	<b>\$0</b>	<b>\$3,831,686</b>	<b>\$0</b>	<b>\$25,379,710</b>	<b>\$383,237</b>	<b>\$476,939</b>	<b>\$19,343,863</b>	<b>\$395,786</b>
<b>Benefits Less Costs</b>									
<b>Total Benefits less Total Costs</b>	<b>\$43,820,026</b>	<b>(\$2,321,062)</b>	<b>(\$7,773,622)</b>	<b>(\$10,581,486)</b>	<b>\$25,379,710</b>	<b>\$302,084</b>	<b>\$476,939</b>	<b>\$19,343,863</b>	<b>\$314,633</b>
<b>Net Present Value</b>									
<b>NPV at 3% Discount Rate</b>	<b>\$31,137,132</b>	<b>(\$2,321,062)</b>	<b>(\$7,547,206)</b>	<b>(\$9,974,066)</b>	<b>\$23,226,030</b>	<b>\$268,398</b>	<b>\$411,412</b>	<b>\$16,200,181</b>	<b>\$255,825</b>
<b>NPV at 7% Discount Rate</b>	<b>\$20,793,344</b>	<b>(\$2,321,062)</b>	<b>(\$7,265,067)</b>	<b>(\$9,242,280)</b>	<b>\$20,717,404</b>	<b>\$230,458</b>	<b>\$340,051</b>	<b>\$12,889,633</b>	<b>\$195,937</b>

**Inner Loop East Reconstruction  
Project  
Detailed Annual Model  
Page 2**

Years	2022	2023	2024	2025	2026	2027	2028	2029	2030
<b>Costs</b>									
Construction Costs	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Maintenance and Repair Costs	\$0	\$0	(\$81,153)	\$0	\$0	(\$81,153)	\$0	\$0	(\$1,875,506)
<b>Total Costs</b>	<b>\$0</b>	<b>\$0</b>	<b>(\$81,153)</b>	<b>\$0</b>	<b>\$0</b>	<b>(\$81,153)</b>	<b>\$0</b>	<b>\$0</b>	<b>(\$1,875,506)</b>
<b>Benefits</b>									
<i>State of Good Repair</i>									
<u>Lifecycle Cost Savings</u>	\$0	\$136,450	(\$81,153)	\$279,656	\$123,901	\$283,408	\$0	\$136,450	(\$1,107,550)
Subtotal	\$0	\$136,450	(\$81,153)	\$279,656	\$123,901	\$283,408	\$0	\$136,450	(\$1,107,550)
<i>Economic Competitiveness</i>									
Newly Created Parcels Value	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<u>Existing Parcel Value Increase</u>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<i>Safety</i>									
<u>Prevented Injuries &amp; Accidents</u>	\$464,390	\$464,390	\$464,390	\$464,390	\$464,390	\$464,390	\$464,390	\$464,390	\$464,390
Subtotal	\$464,390	\$464,390	\$464,390	\$464,390	\$464,390	\$464,390	\$464,390	\$464,390	\$464,390
<b>Total Benefits</b>	<b>\$464,390</b>	<b>\$600,840</b>	<b>\$383,237</b>	<b>\$744,046</b>	<b>\$588,291</b>	<b>\$747,798</b>	<b>\$464,390</b>	<b>\$600,840</b>	<b>(\$643,160)</b>
<b>Benefits Less Costs</b>									
<b>Total Benefits less Total Costs</b>	<b>\$464,390</b>	<b>\$600,840</b>	<b>\$302,084</b>	<b>\$744,046</b>	<b>\$588,291</b>	<b>\$666,645</b>	<b>\$464,390</b>	<b>\$600,840</b>	<b>(\$2,518,666)</b>
<b>Net Present Value</b>									
NPV at 3% Discount Rate	\$366,594	\$460,494	\$224,779	\$537,515	\$412,616	\$453,953	\$307,016	\$385,656	(\$1,569,549)
NPV at 7% Discount Rate	\$270,279	\$326,817	\$153,564	\$353,491	\$261,208	\$276,634	\$180,098	\$217,772	(\$853,159)

**Inner Loop East Reconstruction  
Project  
Detailed Annual Model  
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Years	2031	2032	2033	2034	2035	2036	2037	2038	2039
<b>Costs</b>									
Construction Costs	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Maintenance and Repair Costs	\$0	\$0	(\$81,153)	\$0	\$0	(\$81,153)	\$0	\$0	(\$81,153)
<b>Total Costs</b>	<b>\$0</b>	<b>\$0</b>	<b>(\$81,153)</b>	<b>\$0</b>	<b>\$0</b>	<b>(\$81,153)</b>	<b>\$0</b>	<b>\$0</b>	<b>(\$81,153)</b>
<b>Benefits</b>									
<i>State of Good Repair</i>									
<u>Lifecycle Cost Savings</u>	\$12,549	\$123,901	(\$68,604)	\$0	\$11,223,638	(\$81,153)	\$12,549	\$123,901	\$283,408
Subtotal	\$12,549	\$123,901	(\$68,604)	\$0	\$11,223,638	(\$81,153)	\$12,549	\$123,901	\$283,408
<i>Economic Competitiveness</i>									
Newly Created Parcels Value	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<u>Existing Parcel Value Increase</u>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<i>Safety</i>									
<u>Prevented Injuries &amp; Accidents</u>	\$464,390	\$464,390	\$464,390	\$464,390	\$464,390	\$464,390	\$464,390	\$464,390	\$464,390
Subtotal	\$464,390	\$464,390	\$464,390	\$464,390	\$464,390	\$464,390	\$464,390	\$464,390	\$464,390
<b>Total Benefits</b>	<b>\$476,939</b>	<b>\$588,291</b>	<b>\$395,786</b>	<b>\$464,390</b>	<b>\$11,688,028</b>	<b>\$383,237</b>	<b>\$476,939</b>	<b>\$588,291</b>	<b>\$747,798</b>
<b>Benefits Less Costs</b>									
<b>Total Benefits less Total Costs</b>	<b>\$476,939</b>	<b>\$588,291</b>	<b>\$314,633</b>	<b>\$464,390</b>	<b>\$11,688,028</b>	<b>\$302,084</b>	<b>\$476,939</b>	<b>\$588,291</b>	<b>\$666,645</b>
<b>Net Present Value</b>									
NPV at 3% Discount Rate	\$288,556	\$345,559	\$179,431	\$257,121	\$6,282,891	\$157,655	\$241,661	\$289,400	\$318,394
NPV at 7% Discount Rate	\$150,987	\$174,054	\$86,999	\$120,007	\$2,822,812	\$68,184	\$100,609	\$115,980	\$122,829

**Inner Loop East Reconstruction  
Project  
Detailed Annual Model  
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Years	2040	2041	2042	2043	2044	2045
<b>Costs</b>						
Construction Costs	\$0	\$0	\$0	\$0	\$0	\$0
Maintenance and Repair Costs	\$0	\$0	(\$81,153)	\$0	\$0	(\$1,875,506)
<b>Total Costs</b>	<b>\$0</b>	<b>\$0</b>	<b>(\$81,153)</b>	<b>\$0</b>	<b>\$0</b>	<b>(\$1,875,506)</b>
<b>Benefits</b>						
<i>State of Good Repair</i>						
<u>Lifecycle Cost Savings</u>	\$1,700,223	\$136,450	(\$81,153)	\$12,549	\$123,901	(\$1,521,785)
Subtotal	\$1,700,223	\$136,450	(\$81,153)	\$12,549	\$123,901	(\$1,521,785)
<i>Economic Competiveness</i>						
Newly Created Parcels Value	\$0	\$0	\$0	\$0	\$0	\$0
<u>Existing Parcel Value Increase</u>	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal	\$0	\$0	\$0	\$0	\$0	\$0
<i>Safety</i>						
<u>Prevented Injuries &amp; Accidents</u>	\$464,390	\$464,390	\$464,390	\$464,390	\$464,390	\$464,390
Subtotal	\$464,390	\$464,390	\$464,390	\$464,390	\$464,390	\$464,390
<b>Total Benefits</b>	<b>\$2,164,613</b>	<b>\$600,840</b>	<b>\$383,237</b>	<b>\$476,939</b>	<b>\$588,291</b>	<b>(\$1,057,395)</b>
<b>Benefits Less Costs</b>						
<b>Total Benefits less Total Costs</b>	<b>\$2,164,613</b>	<b>\$600,840</b>	<b>\$302,084</b>	<b>\$476,939</b>	<b>\$588,291</b>	<b>(\$2,932,900)</b>
<b>Net Present Value</b>						
NPV at 3% Discount Rate	\$1,003,720	\$270,492	\$132,034	\$202,387	\$242,368	(\$1,173,122)
NPV at 7% Discount Rate	\$372,737	\$96,693	\$45,434	\$67,040	\$77,282	(\$360,081)

**Inner Loop East Reconstruction Project  
Construction Costs Summary**

Year	Project Year	Construction Cost (\$ 2013)
2014	0	(\$2,321,062)
2015	1	(\$11,605,308)
2016	2	(\$10,581,486)
2017	3	\$0
2018	4	\$0
2019	5	\$0
2020	6	\$0
2021	7	\$0
2022	8	\$0
2023	9	\$0
2024	10	\$0
2025	11	\$0
2026	12	\$0
2027	13	\$0
2028	14	\$0
2029	15	\$0
2030	16	\$0
2031	17	\$0
2032	18	\$0
2033	19	\$0
2034	20	\$0
2035	21	\$0
2036	22	\$0
2037	23	\$0
2038	24	\$0
2039	25	\$0
2040	26	\$0
2041	27	\$0
2042	28	\$0
2043	29	\$0
2044	30	\$0
2045	31	\$0
<b>Total</b>	<b>0-31</b>	<b>(\$24,507,856)</b>
<b>Net Present Value 3% Discount Rate</b>		<b>(\$23,562,417)</b>
<b>Net Present Value 7% Discount Rate</b>		<b>(\$22,409,424)</b>

**Inner Loop East Reconstruction Project  
Construction Costs and Schedule**

**May 2013**

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DESCRIPTION	AMOUNT
<b>Pavement Costs (City Streets)</b>	
Full Depth Pavement Reconstruction (@60 Year Cycle)(2015)	<b>\$23,210,616</b>
Expenditure 2014 (10%)	\$2,321,062
Expenditure 2015 (50%)	\$11,605,308
Expenditure 2016 (40%)	\$9,284,246
<b>Traffic Signal Costs</b>	
New Signal installation (2016)	\$1,297,240
<b>Schedule</b>	
2015 Full Depth Reconstruction with Signals	\$24,507,856

**Inner Loop East  
Reconstruction Project  
Detailed Full Depth  
Reconstruction Costs**

**May 2013**

ITEM #	DESCRIPTION	QUANTITY	PAY UNIT	UNIT PRICE	AMOUNT
<b>Full Depth Reconstruction (City Streets)</b>					
203.02	UNCLASSIFIED EXCAVATION AND DISPOSAL	40000	CY	\$18.00	\$720,000.00
203.03	EMBANKMENT IN PLACE	120000	CY	\$20.00	\$2,400,000.00
206.02	TRENCH AND CULVERT EXCAVATION	2100	CY	\$20.00	\$42,000.00
206.03	CONDUIT EXCAVATION AND BACKFILL INCLUDING SURFACE RESTORATION	10000	LF	\$10.00	\$100,000.00
206.04	TRENCH AND CULVERT EXCAVATION - O.G.	3150	CY	\$20.00	\$63,000.00
207.21	GEOTEXTILE SEPARATION	49500	SY	\$2.00	\$99,000.00
304.12	SUBBASE COURSE, TYPE 2	18500	CY	\$40.00	\$740,000.00
402.098202	9.5 F2 TOP COURSE HMA, 80 SERIES COMPACTION	4450	TON	\$110.00	\$489,500.00
402.098212	PLANT PRODUCTION QUALITY ADJUSTMENT TO 402.098202	223	QU	\$70.00	\$15,610.00
402.198902	19 F9 BINDER COURSE HMA, 80 SERIES COMPACTION	5700	TON	\$105.00	\$598,500.00
402.198912	PLANT PRODUCTION QUALITY ADJUSTMENT TO 402.198902	285	QU	\$70.00	\$19,950.00
402.378902	37.5 F9 BASE COURSE HMA, 80 SERIES COMPACTION	16500	TON	\$100.00	\$1,650,000.00
402.378912	PLANT PRODUCTION QUALITY ADJUSTMENT TO 402.378902	825	QU	\$70.00	\$57,750.00
407.0102	DILUTED TACK COAT	8900	GAL	\$7.00	\$62,300.00
520.50140008	SAW CUTTING, ASPHALT PAVEMENT, ASPHALT SURFACE COURSE, CONCRETE PAVEMENT OR ASPHALT OVERLAY ON CONCRETE PAVEMENT	900	LF	\$6.00	\$5,400.00
500.XX	STRUCTURE REMOVAL - EAST AVENUE BRIDGE	1	LS	\$326,000.00	\$326,000.00
500.XX	STRUCTURE REMOVAL - BROAD STREET BRIDGE	1	LS	\$423,000.00	\$423,000.00
500.XX	STRUCTURE REMOVAL - STEAM PIPE BRIDGE	1	LS	\$34,000.00	\$34,000.00
500.XX	STRUCTURE REMOVAL - MONROE AVENUE BRIDGE	1	LS	\$297,000.00	\$297,000.00
580.01	REMOVAL OF STRUCTURAL CONCRETE	1650	CY	\$800.00	\$1,320,000.00

587.02	BRIDGE RAILING REMOVAL AND STORAGE	8800	LF	\$40.00	\$352,000.00
603.98100804	POLYVINYL CHLORIDE (PVC) SEWER PIPE & FITTINGS 8" DIAMETER	2150	LF	\$20.00	\$43,000.00
604.070402	ALTERING DRAINAGE STRUCTURES, LEACHING BASINS AND MANHOLES	60	EA	\$700.00	\$42,000.00
604.500401	SPECIAL DRAINAGE STRUCTURE	1075	LF	\$250.00	\$268,750.00
605.0901	UNDERDRAIN FILTER TYPE 1	2100	CY	\$35.00	\$73,500.00
605.1502	PERFORATED CORRUGATED POLYETHYLENE UNDERDRAIN TUBING, 6 INCH DIAMETER	25000	LF	\$7.50	\$187,500.00
606.73	REMOVING AND DISPOING OF BOX BEAM GUIDERAIL	8800	LF	\$3.50	\$30,800.00
608.0101	CONCRETE SIDEWALKS AND DRIVEWAYS	1750	CY	\$380.00	\$665,000.00
608.020102	HOT MIX ASPHALT (HMA) SIDEWALKS, DRIVEWAYS AND BICYCLE PATHS, AND VEGETATION CONTROL STRIPS	100	TON	\$150.00	\$15,000.00
608.21	EMBEDDED DETECTABLE WARNING UNITS	110	SY	\$300.00	\$33,000.00
609.0251	GRANITE CURB (AS DETAILED) - TYPE I	25000	LF	\$30.00	\$750,000.00
610.1101	MULCH FOR PLANTING TYPE A, B & D - WOOD CHIPS AND SHREDDED BARK	225	CY	\$50.00	\$11,250.00
610.1403	TOPSOIL - LAWNS	3100	CY	\$45.00	\$139,500.00
610.1602	TURF ESTABLISHMENT - LAWNS	28000	SY	\$1.50	\$42,000.00
611.0151	PLANTING - MINOR DECIDUOUS TREES - 2 INCH CALIPER BALL & BURLAP, FIELD POTTED OR FIELD BOXE	400	EA	\$350.00	\$140,000.00
645.5102	GROUND-MOUNTED SIGN PANELS LESS THAN OR EQUAL TO 30 SF WITH Z-BARS	1000	SF	\$25.00	\$25,000.00
645.81	TYPE A SIGN POSTS	100	EA	\$100.00	\$10,000.00
645.85	POLE MOUNTED SIGN SUPPORT SYSTEM (BAND MOUNTED)	150	EA	\$100.00	\$15,000.00
647.61	REMOVAL OF SIGNS - SIZE A (0 - 10 SQUARE FEET)REM AND DISPOSE GROUND MOUNTED TYPE A SIGN SUPPORT(S), FDNS AND ANY ATTACHED SIGNS - SIZE I (UNDER 30 SQUARE FEET)	300	EA	\$25.00	\$7,500.00
655.1103	WELDED FRAME AND RETICULINE GRATE 3	215	EA	\$550.00	\$118,250.00
655.1202	MANHOLE FRAME AND COVER	60	EA	\$750.00	\$45,000.00
663.33	ADJUST EXISTING VALVE BOX ELEVATION	100	EA	\$250.00	\$25,000.00
670.0104	FOUNDATION FOR LIGHT STANDARDS, 4 FEET LONG	100	EA	\$1,000.00	\$100,000.00
670.2602	RIGID PLASTIC CONDUIT, 2"	10000	LF	\$3.00	\$30,000.00
670.xx	NEW LIGHTPOLE AND LUMINAIRE	100	EA	\$2,000.00	\$200,000.00

670.300101MO	INSTALL LIGHTING PULLBOX FRAME AND COVER (CITY OF ROCHESTER) - 2' X 2' SQUARE	100	EA	\$125.00	\$12,500.00
670.81	REMOVE AND DISPOSE OF LAMPPOST ASSEMBLY	295	EA	\$175.00	\$51,625.00
670.82	REMOVE LAMPPOST FOUNDATION	295	EA	\$185.00	\$54,575.00
685.11	WHITE EPOXY REFLECTORIZED PAVEMENT STRIPES - 20 MILS	24000	LF	\$0.75	\$18,000.00
685.12	YELLOW EPOXY REFLECTORIZED PAVEMENT STRIPES - 20 MILS	19000	LF	\$0.75	\$14,250.00
688.01	WHITE PREFORMED REFLECTORIZED PAVEMENT STRIPES	4200	LF	\$2.00	\$8,400.00
900.xx	WATERMAIN WORK	1	LS	\$750,000.00	\$750,000.00
	<b>SUBTOTAL (2013 Dollars)</b>				<b>\$13,741,410.00</b>
	MPT (5%), Survey Operations(4%), Mobilization (4%)	13%	LS	\$1,786,383.30	\$1,786,383.30
	Contingency	20%	LS	\$2,748,282.00	\$2,748,282.00
	<b>TOTAL CONSTRUCTION COST (2013)</b>				<b>\$18,276,075.30</b>
	Design Fees	12%	LS	\$2,193,129.04	\$2,193,129.04
	Construction Inspection Fees	15%	LS	\$2,741,411.30	\$2,741,411.30
	<b>TOTAL PROJECT COST (2013)</b>				<b>\$23,210,615.63</b>

**Inner Loop East Reconstruction  
Project**

**May 2013**

**Detailed Traffic Signal  
Construction Costs**

ITEM #	DESCRIPTION	QUANTITY	PAY UNIT	UNIT PRICE	AMOUNT
<b>Traffic Signals (New)</b>					
206.03	CONDUIT EXCAVATION AND BACKFILL INCLUDING SURFACE RESTORATION	2030	LF	\$10.00	\$20,300.00
680.10020001	POWDER COATING TRAFFIC SIGNAL POLE - MAST ARM	4	EA	\$1,750.00	\$7,000.00
680.5001	POLE EXCAVATION AND CONCRETE FOUNDATION	14	CY	\$900.00	\$12,960.00
680.5002	CONCRETE BASE FOR CONTROLLER CABINET	1	EA	\$1,600.00	\$1,600.00
680.510301	PULLBOX-CIRCULAR, 24 INCH DIAMETER, REINFORCED CONCRETE	7	EA	\$1,100.00	\$7,700.00
680.510401	PULLBOX-CIRCULAR, 30 INCH DIAMETER, REINFORCED CONCRETE	5	EA	\$1,250.00	\$6,250.00
680.520106	CONDUIT, METAL STEEL, ZINC COATED, 2"	1000	LF	\$10.50	\$10,500.00
680.520108	CONDUIT, METAL STEEL, ZINC COATED, 3"	400	LF	\$15.00	\$6,000.00
680.520110	CONDUIT, METAL STEEL, ZINC COATED, 4"	20	LF	\$25.00	\$500.00
680.521603MO	CONDUIT, PVC SCHEDULE 80, 1" DIAMETER	80	LF	\$6.50	\$520.00
680.521610MO	CONDUIT, PVC SCHEDULE 80, 4" DIAMETER	1500	LF	\$8.50	\$12,750.00
680.54	INDUCTANCE LOOP INSTALLATION	1200	LF	\$9.75	\$11,700.00
680.71	SHIELDED LEAD-IN CABLE	2800	LF	\$1.75	\$4,900.00
680.72	INDUCTANCE LOOP WIRE	600	LF	\$0.65	\$390.00
680.730208	SIGNAL CABLE, 2 CONDUCTORS, 08 AWG	50	LF	\$4.75	\$237.50
680.730714	SIGNAL CABLE 7 CONDUCTORS, 14 AWG	1200	LF	\$4.50	\$5,400.00
680.730914	SIGNAL CABLE 9 CONDUCTORS, 14 AWG	2400	LF	\$5.25	\$12,600.00
680.79000001	REMOVE TRAFFIC SIGNAL EQUIPMENT	1	LS	\$10,000.00	\$10,000.00
680.802708MO	INSTALL ACTUATED 8 PHASE GROUND MOUNTED TRAFFIC SIGNAL CABINET AND EQUIP. (FURNISHED BY COUNTY)	1	EA	\$2,000.00	\$2,000.00
680.809908MO	ACTUATED 8 PHASE GROUND MOUNTED TRAFFIC SIGNAL CABINET AND EQUIP. (PURCHASED FROM	1	EA	\$3,750.00	\$3,750.00

	COUNTY)				
680.810121MO	TRAFFIC SIGNAL MODULE - 12" DIA., RED BALL, LED	8	EA	\$90.00	\$720.00
680.810123MO	TRAFFIC SIGNAL MODULE - 12" DIA., YELLOW BALL, LED	8	EA	\$115.00	\$920.00
680.810125MO	TRAFFIC SIGNAL MODULE - 12" DIA., GREEN BALL, LED	8	EA	\$125.00	\$1,000.00
680.810128MO	TRAFFIC SIGNAL MODULE - 12" DIA., BIMODAL YELLOW/GREEN ARROW, LED	4	EA	\$175.00	\$700.00
680.810308	INSTALL BALL/ ARROW LED TRAFFIC SIGNAL MODULE	28	EA	\$60.00	\$1,680.00
680.810601	TRAFFIC SIGNAL SECTION - POLYCARBONATE, TYPE I, 12 INCH	28	EA	\$225.00	\$6,300.00
680.8111	TRAFFIC SIGNAL BRACKET ASSEMBLY - 1 WAY	8	EA	\$275.00	\$2,200.00
680.813104	INSTALL LED PEDESTRIAN SIGNAL MODULE	8	EA	\$60.00	\$480.00
680.813109	PEDESTRIAN SIGNAL SECTION - POLYCARBONATE, TYPE I - FOR 16 INCH BY 18 INCH LED MODULE	8	EA	\$375.00	\$3,000.00
680.8141	PEDESTRIAN SIGNAL BRACKET MOUNT ASSEMBLY	8	EA	\$200.00	\$1,600.00
680.820030MO	TRAFFIC SIGNAL POLE MAST ARM COMBINATION ANCHOR BASE (30')	4	EA	\$4,250.00	\$17,000.00
680.8205	OVERHEAD SIGN ASSEMBLY, TYPE E	8	EA	\$600.00	\$4,800.00
680.821618MO	16"X18" PED. SIGNAL - PERSON (FULL) HAND (FULL) 2 DIGIT COUNTDOWN TIMER MODULE - TYPE A UNITS	8	EA	\$350.00	\$2,800.00
680.8225	PEDESTRIAN PUSHBUTTON AND SIGN - WITHOUT POST	8	EA	\$225.00	\$1,800.00
680.854000MO	TRAFFIC SIGNAL MAST ARM, 40 FEET ARM LENGTH	4	EA	\$2,000.00	\$8,000.00
680.995101MO	FIBER-OPTIC CABLE (PURCHASED FROM COUNTY)	750	LF	\$3.50	\$2,625.00
680.996101MO	INSTALL FIBER-OPTIC CABLE (FURNISHED)	750	LF	\$5.00	\$3,750.00
	<b>SUBTOTAL (2013 Dollars) (Per Signal)</b>				<b>\$196,432.50</b>
	MPT (5%), Survey Operations(1%), Mobilization	10%	LS	\$19,643.25	\$19,643.25
	Contingency	20%	LS	\$39,286.50	\$39,286.50
	<b>CONSTRUCTION COST (2013) (Per Signal)</b>				<b>\$255,362.25</b>
	<i>Number of Signals</i>	<b>4</b>			
	<b>TOTAL CONSTRUCTION COST (2013)</b>				<b>\$1,021,449.00</b>
	Design Fees	12%	LS	\$122,573.88	\$122,573.88
	Construction Inspection Fees	15%	LS	\$153,217.35	\$153,217.35
	<b>TOTAL PROJECT COST (2013)</b>				<b>\$1,297,240.23</b>



**Rochester Inner Loop East Reconstruction Project  
Maintenance and Repair Costs Summary**

Year	Project Year	Project Maintenance Cost (\$ 2013)
2014	0	\$0
2015	1	\$0
2016	2	\$0
2017	3	\$0
2018	4	(\$81,153)
2019	5	\$0
2020	6	\$0
2021	7	(\$81,153)
2022	8	\$0
2023	9	\$0
2024	10	(\$81,153)
2025	11	\$0
2026	12	\$0
2027	13	(\$81,153)
2028	14	\$0
2029	15	\$0
2030	16	(\$1,875,506)
2031	17	\$0
2032	18	\$0
2033	19	(\$81,153)
2034	20	\$0
2035	21	\$0
2036	22	(\$81,153)
2037	23	\$0
2038	24	\$0
2039	25	(\$81,153)
2040	26	\$0
2041	27	\$0
2042	28	(\$81,153)
2043	29	\$0
2044	30	\$0
2045	31	(\$1,875,506)
<b>Total</b>	<b>0-31</b>	<b>(\$4,400,235)</b>
<b>Net Present Value 3% Discount Rate</b>		<b>(\$2,335,529)</b>
<b>Net Present Value 7% Discount Rate</b>		<b>(\$1,120,854)</b>

**Inner Loop East Reconstruction Project  
Project Maintenance Costs and Schedule**

**May 2013**

DESCRIPTION		AMOUNT
<b>Pavement Costs (City Streets)</b>		
	Mill and Resurface (@15 Year Cycle) (2030, 2045)	\$1,875,506
	Crack Sealing / Striping (@3 Year Cycle)	\$81,153
<b>Schedule</b>		
2018	Crack Sealing / Striping	\$81,153
2021	Crack Sealing / Striping	\$81,153
2024	Crack Sealing / Striping	\$81,153
2027	Crack Sealing / Striping	\$81,153
2030	Mill & Resurface	\$1,875,506
2033	Crack Sealing / Striping	\$81,153
2036	Crack Sealing / Striping	\$81,153
2039	Crack Sealing / Striping	\$81,153
2042	Crack Sealing / Striping	\$81,153
2045	Mill & Resurface	\$1,875,506

**Inner Loop East  
Reconstruction Project  
Detailed Project Maintenance  
Costs**

**May 2013**

ITEM #	DESCRIPTION	QUANTITY	PAY UNIT	UNIT PRICE	AMOUNT
<b>Mill &amp; Resurface (City Streets)</b>					
402.098202	9.5 F2 TOP COURSE HMA, 80 SERIES COMPACTION	4450	TON	\$110.00	\$489,500.00
402.098212	PLANT PRODUCTION QUALITY ADJUSTMENT TO 402.098202	223	QU	\$70.00	\$15,610.00
402.018902	TRUEING AND LEVELING F9, SUPERPAVE HMA, 80 SERIES COMPACTION	1500	TON	\$140.00	\$210,000.00
402.018912	PLANT PRODUCTION QUALITY ADJUSTMENT TO 402.018902	75	QU	\$70.00	\$5,250.00
407.0102	DILUTED TACK COAT	9900	GAL	\$7.00	\$69,300.00
490.2	PRODUCTION COLD MILLING OF BITUMINOUS CONCRETE	49500	SY	\$6.00	\$297,000.00
685.11	WHITE EPOXY REFLECTORIZED PAVEMENT STRIPES - 20 MILS	24000	LF	\$0.75	\$18,000.00
685.12	YELLOW EPOXY REFLECTORIZED PAVEMENT STRIPES - 20 MILS	19000	LF	\$0.75	\$14,250.00
688.01	WHITE PREFORMED REFLECTORIZED PAVEMENT STRIPES	4200	LF	\$2.00	\$8,400.00
	<b>SUBTOTAL (2013 Dollars)</b>				<b>\$1,127,310.00</b>
	MPT (5%), Survey Operations(2%), Mobilization (4%)	11%	LS	\$124,004.10	\$124,004.10
	Contingency	20%	LS	\$225,462.00	\$225,462.00
	<b>TOTAL CONSTRUCTION COST (2013)</b>				<b>\$1,476,776.10</b>
	Design Fees	12%	LS	\$177,213.13	\$177,213.13
	Construction Inspection Fees	15%	LS	\$221,516.42	\$221,516.42
	<b>TOTAL PROJECT COST (2013)</b>				<b>\$1,875,505.65</b>
<b>Crack Sealing / Striping (City Streets)</b>					
633.12	CLEANING , SEALING AND/OR FILLING CRACKS	7.0	LM	\$3,000.00	\$21,000.00
685.11	WHITE EPOXY REFLECTORIZED PAVEMENT STRIPES - 20 MILS	24000	LF	\$0.75	\$18,000.00
685.12	YELLOW EPOXY REFLECTORIZED PAVEMENT STRIPES - 20 MILS	19000	LF	\$0.75	\$14,250.00

	<b>SUBTOTAL (2013 Dollars)</b>				<b>\$53,250.00</b>
	MPT (3%), Mobilization (4%)	7%	LS	\$3,727.50	\$3,727.50
	Contingency	20%	LS	\$10,650.00	\$10,650.00
	<b>TOTAL CONSTRUCTION COST (2013)</b>				<b>\$67,627.50</b>
	Design Fees	5%	LS	\$3,381.38	\$3,381.38
	Construction Inspection Fees	15%	LS	\$10,144.13	\$10,144.13
	<b>TOTAL PROJECT COST (2013)</b>				<b>\$81,153.00</b>

**Inner Loop East Reconstruction Project  
Lifecycle Cost Savings Summary**

Year	Project Year	No Build Maintenance Cost (\$ 2013)	Project Maintenance Cost (\$ 2013)	Cost Savings (\$ 2013)
2014	0	\$0	\$0	\$0
2015	1	(\$3,831,686)	\$0	\$3,831,686
2016	2	\$0	\$0	\$0
2017	3	(\$136,450)	\$0	\$136,450
2018	4	\$0	(\$81,153)	(\$81,153)
2019	5	(\$12,549)	\$0	\$12,549
2020	6	(\$18,879,473)	\$0	\$18,879,473
2021	7	(\$12,549)	(\$81,153)	(\$68,604)
2022	8	\$0	\$0	\$0
2023	9	(\$136,450)	\$0	\$136,450
2024	10	\$0	(\$81,153)	(\$81,153)
2025	11	(\$279,656)	\$0	\$279,656
2026	12	(\$123,901)	\$0	\$123,901
2027	13	(\$364,561)	(\$81,153)	\$283,408
2028	14	\$0	\$0	\$0
2029	15	(\$136,450)	\$0	\$136,450
2030	16	(\$767,956)	(\$1,875,506)	(\$1,107,550)
2031	17	(\$12,549)	\$0	\$12,549
2032	18	(\$123,901)	\$0	\$123,901
2033	19	(\$12,549)	(\$81,153)	(\$68,604)
2034	20	\$0	\$0	\$0
2035	21	(\$11,223,638)	\$0	\$11,223,638
2036	22	\$0	(\$81,153)	(\$81,153)
2037	23	(\$12,549)	\$0	\$12,549
2038	24	(\$123,901)	\$0	\$123,901
2039	25	(\$364,561)	(\$81,153)	\$283,408
2040	26	(\$1,700,223)	\$0	\$1,700,223
2041	27	(\$136,450)	\$0	\$136,450
2042	28	\$0	(\$81,153)	(\$81,153)
2043	29	(\$12,549)	\$0	\$12,549
2044	30	(\$123,901)	\$0	\$123,901
2045	31	(\$353,721)	(\$1,875,506)	(\$1,521,785)
<b>Total</b>	<b>0-31</b>	<b>(\$38,882,173)</b>	<b>(\$4,400,235)</b>	<b>\$34,481,937</b>
<b>Net Present Value</b>				
<b>3% Discount Rate</b>		<b>(\$28,295,027)</b>	<b>(\$2,335,529)</b>	<b>\$25,959,498</b>
<b>Net Present Value</b>				
<b>7% Discount Rate</b>		<b>(\$20,237,513)</b>	<b>(\$1,120,854)</b>	<b>\$19,116,659</b>

**Inner Loop East Reconstruction Project  
Maintenance Costs for No Build Scenario and Schedule**

**MAY 2013**

DESCRIPTION		AMOUNT
<b>Pavement Costs (City Streets)</b>		
	Full Depth Pavement Reconstruction (@60 Year Cycle)(2020)	\$11,863,934
	Mill and Resurface (@15 Year Cycle) (2035)	\$1,501,523
	Crack Sealing / Striping (@3 Year Cycle)	\$74,752
<b>Pavement Costs (Inner Loop)</b>		
	Full Depth Pavement Reconstruction (@60 Year Cycle)(2035)	\$9,001,847
	Mill and Resurface (@15 Year Cycle) (2020)	\$2,023,708
	Crack Sealing / Striping (@3 Year Cycle)	\$49,149
<b>Traffic Signal Costs</b>		
	New Signal installation (2020)	\$1,945,860
<b>Pavement Maintenance Schedule</b>		
2017	Crack Sealing / Striping (City) (Inner Loop)	\$123,901
2020	Full Depth Reconstruction (City) with Signals & Mill & Resurf (Inner Loop)	\$15,833,503
2023	Crack Sealing / Striping (City) (Inner Loop)	\$123,901
2026	Crack Sealing / Striping (City) (Inner Loop)	\$123,901
2029	Crack Sealing / Striping (City) (Inner Loop)	\$123,901

2032	Crack Sealing / Striping (City) (Inner Loop)	\$123,901
2035	Mill & Resurface (City) & Full Depth Reconstruction (Inner Loop)	\$10,503,370
2038	Crack Sealing / Striping (City) (Inner Loop)	\$123,901
2041	Crack Sealing / Striping (City) (Inner Loop)	\$123,901
2044	Crack Sealing / Striping (City) (Inner Loop)	\$123,901

### Bridge Costs

Monroe Bridge - Joint Repair (15 Year Cycle) (2030,2045)	\$93,243
Monroe Bridge - Deck Inlay (20 Year Cycle) (2020,2040)	\$318,518
Monroe Bridge - Concrete & Steel Rehab (25 Year Cycle) (2025)	\$267,107
Monroe Bridge -Washing (2 Year Cycle)	\$4,135
Broad Bridge - Bridge Rehabilitation (2015)	\$2,328,204
Broad Bridge - Painting (12 Year Cycle) (2015)(2027)(2039)	\$180,213
Broad Bridge - Joint Repair (15 Year Cycle) (2030,2045)	\$118,108
Broad Bridge - Deck Inlay (20 Year Cycle) (2035)	\$424,121
Broad Bridge - Concrete & Steel Rehab (25 Year Cycle) (2040)	\$382,817
Broad Bridge -Washing (2 Year Cycle)	\$4,207
East Bridge - Bridge Rehabilitation (2015)	\$1,096,117
East Bridge - Painting (12 Year Cycle) (2015)(2027)(2039)	\$180,213
East Bridge - Bearing Lube. (15 Year Cycle) (2015,2030,2045)	\$46,939
East Bridge - Joint Repair (15 Year Cycle) (2030,2045)	\$82,883

East Bridge - Deck Inlay (20 Year Cycle) (2035)	\$283,599
East Bridge - Concrete & Steel Rehab (25 Year Cycle)(2040)	\$363,252
East Bridge - Washing (2 Year Cycle)	\$4,207

**Bridge Maintenance Schedule**

2015	Bridge Rehab (Broad, East), Bridge Painting (Broad, East), Bearing Lube (East)	\$3,831,686
2017	Washing (All)	\$12,549
2019	Washing (All)	\$12,549
2020	Deck inlay (Monroe)	\$318,518
2021	Washing (All)	\$12,549
2023	Washing (All)	\$12,549
2025	Concrete & Steel Rehab (Monroe) Washing (All)	\$279,656
2027	Bridge Painting (Broad, East), Washing (Monroe)	\$364,561
2029	Washing (All)	\$12,549
2030	Joint Repair (All), Bearing Lube (East)	\$341,172
2031	Washing (All)	\$12,549
2033	Washing (All)	\$12,549
2035	Deck Inlay(Broad, East), Washing (All)	\$720,268
2037	Washing (All)	\$12,549
2039	Bridge Painting (Broad, East), Washing (Monroe)	\$364,561
2040	Deck Inlay (Monroe), Conc. & Steel Rehab (Broad, East)	\$1,064,588

2041	Washing (All)	\$12,549
2043	Washing (All)	\$12,549
2045	Bearing Lube (East), Washing (All). Joint Repair (All)	\$353,721

**Retaining Walls**

Wall Surface Rehabilitation (2020)	\$2,727,452
Wall Surface Rehabilitation (2030)	\$426,784
Wall Surface Rehabilitation (2040)	\$635,635

**Inner Loop East  
Reconstruction Project  
Detailed No Build Pavement  
Costs (City Streets)**

**MAY 2013**

ITEM #	DESCRIPTION	QUANTITY	PAY UNIT	UNIT PRICE	AMOUNT
<b>Full Depth Reconstruction (City Streets)</b>					
203.02	UNCLASSIFIED EXCAVATION AND DISPOSAL	30000	CY	\$18.00	\$540,000.00
203.03	EMBANKMENT IN PLACE	700	CY	\$20.00	\$14,000.00
206.02	TRENCH AND CULVERT EXCAVATION	1585	CY	\$20.00	\$31,700.00
206.03	CONDUIT EXCAVATION AND BACKFILL INCLUDING SURFACE RESTORATION	30875	LF	\$10.00	\$308,750.00
206.04	TRENCH AND CULVERT EXCAVATION - O.G.	3150	CY	\$20.00	\$63,000.00
207.21	GEOTEXTILE SEPARATION	39200	SY	\$2.00	\$78,400.00
304.12	SUBBASE COURSE, TYPE 2	15000	CY	\$40.00	\$600,000.00
402.098202	9.5 F2 TOP COURSE HMA, 80 SERIES COMPACTION	3520	TON	\$110.00	\$387,200.00
402.098212	PLANT PRODUCTION QUALITY ADJUSTMENT TO 402.098202	176	QU	\$70.00	\$12,320.00
402.198902	19 F9 BINDER COURSE HMA, 80 SERIES COMPACTION	4500	TON	\$105.00	\$472,500.00
402.198912	PLANT PRODUCTION QUALITY ADJUSTMENT TO 402.198902	225	QU	\$70.00	\$15,750.00
402.378902	37.5 F9 BASE COURSE HMA, 80 SERIES COMPACTION	13000	TON	\$100.00	\$1,300,000.00
402.378912	PLANT PRODUCTION QUALITY ADJUSTMENT TO 402.378902	650	QU	\$70.00	\$45,500.00
407.0102	DILUTED TACK COAT	7050	GAL	\$7.00	\$49,350.00
520.50140008	SAW CUTTING, ASPHALT PAVEMENT, ASPHALT SURFACE COURSE, CONCRETE PAVEMENT OR ASPHALT OVERLAY ON CONCRETE PAVEMENT	900	LF	\$6.00	\$5,400.00
603.98100804	POLYVINYL CHLORIDE (PVC) SEWER PIPE & FITTINGS 8" DIAMETER	2150	LF	\$20.00	\$43,000.00
604.070402	ALTERING DRAINAGE STRUCTURES, LEACHING BASINS AND MANHOLES	60	EA	\$700.00	\$42,000.00
604.500401	SPECIAL DRAINAGE STRUCTURE	1075	LF	\$250.00	\$268,750.00
605.0901	UNDERDRAIN FILTER TYPE 1	1585	CY	\$35.00	\$55,475.00
605.1502	PERFORATED CORRUGATED POLYETHYLENE UNDERDRAIN TUBING, 6 INCH DIAMETER	19000	LF	\$7.50	\$142,500.00

608.0101	CONCRETE SIDEWALKS AND DRIVEWAYS	1550	CY	\$380.00	\$589,000.00
608.020102	HOT MIX ASPHALT (HMA) SIDEWALKS, DRIVEWAYS AND BICYCLE PATHS, AND VEGETATION CONTROL STRIPS	200	TON	\$150.00	\$30,000.00
608.21	EMBEDDED DETECTABLE WARNING UNITS	80	SY	\$300.00	\$24,000.00
609.0251	GRANITE CURB (AS DETAILED) - TYPE I	19000	LF	\$30.00	\$570,000.00
610.1101	MULCH FOR PLANTING TYPE A, B & D - WOOD CHIPS AND SHREDDED BARK	30	CY	\$50.00	\$1,500.00
610.1403	TOPSOIL - LAWNS	1850	CY	\$45.00	\$83,250.00
610.1602	TURF ESTABLISHMENT - LAWNS	16700	SY	\$1.50	\$25,050.00
611.0151	PLANTING - MINOR DECIDUOUS TREES - 2 INCH CALIPER BALL & BURLAP, FIELD POTTED OR FIELD BOXE	50	EA	\$350.00	\$17,500.00
645.5102	GROUND-MOUNTED SIGN PANELS LESS THAN OR EQUAL TO 30 SF WITH Z-BARS	750	SF	\$25.00	\$18,750.00
645.81	TYPE A SIGN POSTS	100	EA	\$100.00	\$10,000.00
645.85	POLE MOUNTED SIGN SUPPORT SYSTEM (BAND MOUNTED)	150	EA	\$100.00	\$15,000.00
647.61	REMOVAL OF SIGNS - SIZE A (0 - 10 SQUARE FEET) REM AND DISPOSE GROUND MOUNTED TYPE A SIGN SUPPORT(S), FDNS AND ANY ATTACHED SIGNS - SIZE I (UNDER 30 SQUARE FEET)	250	EA	\$25.00	\$6,250.00
655.1103	WELDED FRAME AND RETICULINE GRATE 3	215	EA	\$550.00	\$118,250.00
655.1202	MANHOLE FRAME AND COVER	60	EA	\$750.00	\$45,000.00
663.33	ADJUST EXISTING VALVE BOX ELEVATION	100	EA	\$250.00	\$25,000.00
670.0104	FOUNDATION FOR LIGHT STANDARDS, 4 FEET LONG	240	EA	\$1,000.00	\$240,000.00
670.2602	RIGID PLASTIC CONDUIT, 2"	30875	LF	\$3.00	\$92,625.00
670.xx	NEW LIGHTPOLE AND LUMINAIRE	240	EA	\$2,000.00	\$480,000.00
670.300101MO	INSTALL LIGHTING PULLBOX FRAME AND COVER (CITY OF ROCHESTER) - 2' X 2' SQUARE	240	EA	\$125.00	\$30,000.00
670.81	REMOVE AND DISPOSE OF LAMPPOST ASSEMBLY	240	EA	\$175.00	\$42,000.00
670.82	REMOVE LAMPPOST FOUNDATION	240	EA	\$185.00	\$44,400.00
685.11	WHITE EPOXY REFLECTORIZED PAVEMENT STRIPES - 20 MILS	24000	LF	\$0.75	\$18,000.00
685.12	YELLOW EPOXY REFLECTORIZED PAVEMENT STRIPES - 20 MILS	19000	LF	\$0.75	\$14,250.00

688.01	WHITE PREFORMED REFLECTORIZED PAVEMENT STRIPES	4200	LF	\$2.00	\$8,400.00
	<b>SUBTOTAL (2013 Dollars)</b>				<b>\$7,023,820.00</b>
	MPT (5%), Survey Operations(4%), Mobilization (4%)	13%	LS	\$913,096.60	\$913,096.60
	Contingency	20%	LS	\$1,404,764.00	\$1,404,764.00
	<b>TOTAL CONSTRUCTION COST (2013)</b>				<b>\$9,341,680.60</b>
	Design Fees	12%	LS	\$1,121,001.67	\$1,121,001.67
	Construction Inspection Fees	15%	LS	\$1,401,252.09	\$1,401,252.09
	<b>TOTAL PROJECT COST (2013)</b>				<b>\$11,863,934.36</b>
	<b>Mill &amp; Resurface (City Streets)</b>				
402.098202	9.5 F2 TOP COURSE HMA, 80 SERIES COMPACTION	3520	TON	\$110.00	\$387,200.00
402.098212	PLANT PRODUCTION QUALITY ADJUSTMENT TO 402.098202	176	QU	\$70.00	\$12,320.00
402.018902	TRUEING AND LEVELING F9, SUPERPAVE HMA, 80 SERIES COMPACTION	1200	TON	\$140.00	\$168,000.00
402.018912	PLANT PRODUCTION QUALITY ADJUSTMENT TO 402.018902	60	QU	\$70.00	\$4,200.00
407.0102	DILUTED TACK COAT	7850	GAL	\$7.00	\$54,950.00
490.2	PRODUCTION COLD MILLING OF BITUMINOUS CONCRETE	39200	SY	\$6.00	\$235,200.00
685.11	WHITE EPOXY REFLECTORIZED PAVEMENT STRIPES - 20 MILS	24000	LF	\$0.75	\$18,000.00
685.12	YELLOW EPOXY REFLECTORIZED PAVEMENT STRIPES - 20 MILS	19000	LF	\$0.75	\$14,250.00
688.01	WHITE PREFORMED REFLECTORIZED PAVEMENT STRIPES	4200	LF	\$2.00	\$8,400.00
	<b>SUBTOTAL (2013 Dollars)</b>				<b>\$902,520.00</b>
	MPT (5%), Survey Operations(2%), Mobilization (4%)	11%	LS	\$99,277.20	\$99,277.20
	Contingency	20%	LS	\$180,504.00	\$180,504.00
	<b>TOTAL CONSTRUCTION COST (2013)</b>				<b>\$1,182,301.20</b>
	Design Fees	12%	LS	\$141,876.14	\$141,876.14
	Construction Inspection Fees	15%	LS	\$177,345.18	\$177,345.18
	<b>TOTAL PROJECT COST (2015)</b>				<b>\$1,501,522.52</b>

<b>Crack Sealing / Striping (City Streets)</b>					
633.12	CLEANING , SEALING AND/OR FILLING CRACKS	5.6	LM	\$3,000.00	\$16,800.00
685.11	WHITE EPOXY REFLECTORIZED PAVEMENT STRIPES - 20 MILS	24000	LF	\$0.75	\$18,000.00
685.12	YELLOW EPOXY REFLECTORIZED PAVEMENT STRIPES - 20 MILS	19000	LF	\$0.75	\$14,250.00
	<b>SUBTOTAL (2013 Dollars)</b>				<b>\$49,050.00</b>
	MPT (3%), Mobilization (4%)	7%	LS	\$3,433.50	\$3,433.50
	Contingency	20%	LS	\$9,810.00	\$9,810.00
	<b>TOTAL CONSTRUCTION COST (2013)</b>				<b>\$62,293.50</b>
	Design Fees	5%	LS	\$3,114.68	\$3,114.68
	Construction Inspection Fees	15%	LS	\$9,344.03	\$9,344.03
	<b>TOTAL PROJECT COST (2013)</b>				<b>\$74,752.20</b>

**Inner Loop East  
Reconstruction Project  
Detailed No Build Pavement  
Costs (Inner Loop)**

**MAY 2013**

ITEM #	DESCRIPTION	QUANTITY	PAY UNIT	UNIT PRICE	AMOUNT
<b>Full Depth Reconstruction (Inner Loop)</b>					
203.02	UNCLASSIFIED EXCAVATION AND DISPOSAL	25000	CY	\$18.00	\$450,000.00
203.03	EMBANKMENT IN PLACE	400	CY	\$20.00	\$8,000.00
206.02	TRENCH AND CULVERT EXCAVATION	1475	CY	\$20.00	\$29,500.00
206.03	CONDUIT EXCAVATION AND BACKFILL INCLUDING SURFACE RESTORATION	4400	LF	\$10.00	\$44,000.00
206.04	TRENCH AND CULVERT EXCAVATION - O.G.	1175	CY	\$20.00	\$23,500.00
207.21	GEOTEXTILE SEPARATION	37350	SY	\$2.00	\$74,700.00
304.12	SUBBASE COURSE, TYPE 2	12500	CY	\$40.00	\$500,000.00
402.098202	9.5 F2 TOP COURSE HMA, 80 SERIES COMPACTION	3360	TON	\$110.00	\$369,600.00
402.098212	PLANT PRODUCTION QUALITY ADJUSTMENT TO 402.098202	168	QU	\$70.00	\$11,760.00
402.198902	19 F9 BINDER COURSE HMA, 80 SERIES COMPACTION	4300	TON	\$105.00	\$451,500.00
402.198912	PLANT PRODUCTION QUALITY ADJUSTMENT TO 402.198902	215	QU	\$70.00	\$15,050.00
402.378902	37.5 F9 BASE COURSE HMA, 80 SERIES COMPACTION	16500	TON	\$100.00	\$1,650,000.00
402.378912	PLANT PRODUCTION QUALITY ADJUSTMENT TO 402.378902	825	QU	\$70.00	\$57,750.00
407.0102	DILUTED TACK COAT	6720	GAL	\$7.00	\$47,040.00
520.50140008	SAW CUTTING, ASPHALT PAVEMENT, ASPHALT SURFACE COURSE, CONCRETE PAVEMENT OR ASPHALT OVERLAY ON CONCRETE PAVEMENT	1000	LF	\$6.00	\$6,000.00
603.98100804	POLYVINYL CHLORIDE (PVC) SEWER PIPE & FITTINGS 8" DIAMETER	800	LF	\$20.00	\$16,000.00
604.070402	ALTERING DRAINAGE STRUCTURES, LEACHING BASINS AND MANHOLES	10	EA	\$700.00	\$7,000.00
604.500401	SPECIAL DRAINAGE STRUCTURE	400	LF	\$250.00	\$100,000.00
605.0901	UNDERDRAIN FILTER TYPE 1	1475	CY	\$35.00	\$51,625.00
605.1502	PERFORATED CORRUGATED POLYETHYLENE UNDERDRAIN TUBING, 6 INCH DIAMETER	17600	LF	\$7.50	\$132,000.00
606.11	BOX BEAM GUIDERAIL	8800	LF	\$35.00	\$308,000.00

606.73	REMOVING AND DISPOING OF BOX BEAM GUIDERAIL	8800	LF	\$3.50	\$30,800.00
609.0251	GRANITE CURB (AS DETAILED) - TYPE I	17600	LF	\$30.00	\$528,000.00
610.1403	TOPSOIL - LAWNS	2150	CY	\$45.00	\$96,750.00
610.1602	TURF ESTABLISHMENT - LAWNS	19550	SY	\$1.50	\$29,325.00
645.5102	GROUND-MOUNTED SIGN PANELS LESS THAN OR EQUAL TO 30 SF WITH Z-BARS	500	SF	\$25.00	\$12,500.00
645.81	TYPE A SIGN POSTS	50	EA	\$100.00	\$5,000.00
647.61	REMOVAL OF SIGNS - SIZE A (0 - 10 SQUARE FEET) REM AND DISPOSE GROUND MOUNTED TYPE A SIGN SUPPORT(S), FDNS AND ANY ATTACHED SIGNS - SIZE I (UNDER 30 SQUARE FEET)	50	EA	\$25.00	\$1,250.00
655.1103	WELDED FRAME AND RETICULINE GRATE 3	80	EA	\$550.00	\$44,000.00
655.1202	MANHOLE FRAME AND COVER	10	EA	\$750.00	\$7,500.00
670.0104	FOUNDATION FOR LIGHT STANDARDS, 4 FEET LONG	55	EA	\$1,000.00	\$55,000.00
670.2602	RIGID PLASTIC CONDUIT, 2"	4400	LF	\$3.00	\$13,200.00
670.xx	NEW LIGHTPOLE AND LUMINAIRE	55	EA	\$2,000.00	\$110,000.00
670.300101MO	INSTALL LIGHTING PULLBOX FRAME AND COVER (CITY OF ROCHESTER) - 2' X 2' SQUARE	55	EA	\$125.00	\$6,875.00
670.81	REMOVE AND DISPOSE OF LAMPPOST ASSEMBLY	55	EA	\$175.00	\$9,625.00
670.82	REMOVE LAMPPOST FOUNDATION	55	EA	\$185.00	\$10,175.00
685.11	WHITE EPOXY REFLECTORIZED PAVEMENT STRIPES - 20 MILS	12000	LF	\$0.75	\$9,000.00
685.12	YELLOW EPOXY REFLECTORIZED PAVEMENT STRIPES - 20 MILS	9800	LF	\$0.75	\$7,350.00
	<b>SUBTOTAL (2013 Dollars)</b>				<b>\$5,329,375.00</b>
	MPT (5%), Survey Operations(4%), Mobilization (4%)	13%	LS	\$692,818.75	\$692,818.75
	Contingency	20%	LS	\$1,065,875.00	\$1,065,875.00
	<b>TOTAL CONSTRUCTION COST (2013)</b>				<b>\$7,088,068.75</b>
	Design Fees	12%	LS	\$850,568.25	\$850,568.25
	Construction Inspection Fees	15%	LS	\$1,063,210.31	\$1,063,210.31
	<b>TOTAL PROJECT COST (2013)</b>				<b>\$9,001,847.31</b>

<b>Mill &amp; Resurface (Inner Loop)</b>					
402.098202	9.5 F2 TOP COURSE HMA, 80 SERIES COMPACTION	6720	TON	\$110.00	\$739,200.00
402.098212	PLANT PRODUCTION QUALITY ADJUSTMENT TO 402.098202	336	QU	\$70.00	\$23,520.00
402.018902	TRUEING AND LEVELING F9, SUPERPAVE HMA, 80 SERIES COMPACTION	1120	TON	\$140.00	\$156,800.00
402.018912	PLANT PRODUCTION QUALITY ADJUSTMENT TO 402.018902	56	QU	\$70.00	\$3,920.00
407.0102	DILUTED TACK COAT	7500	GAL	\$7.00	\$52,500.00
490.2	PRODUCTION COLD MILLING OF BITUMINOUS CONCRETE	37350	SY	\$6.00	\$224,100.00
685.11	WHITE EPOXY REFLECTORIZED PAVEMENT STRIPES - 20 MILS	12000	LF	\$0.75	\$9,000.00
685.12	YELLOW EPOXY REFLECTORIZED PAVEMENT STRIPES - 20 MILS	9800	LF	\$0.75	\$7,350.00
	<b>SUBTOTAL (2013 Dollars)</b>				<b>\$1,216,390.00</b>
	MPT (5%), Survey Operations(2%), Mobilization (4%)	11%	LS	\$133,802.90	\$133,802.90
	Contingency	20%	LS	\$243,278.00	\$243,278.00
	<b>TOTAL CONSTRUCTION COST (2013)</b>				<b>\$1,593,470.90</b>
	Design Fees	12%	LS	\$191,216.51	\$191,216.51
	Construction Inspection Fees	15%	LS	\$239,020.64	\$239,020.64
	<b>TOTAL PROJECT COST (2013)</b>				<b>\$2,023,708.04</b>
<b>Crack Sealing / Striping (Inner loop)</b>					
633.12	CLEANING , SEALING AND/OR FILLING CRACKS	5.3	LM	\$3,000.00	\$15,900.00
685.11	WHITE EPOXY REFLECTORIZED PAVEMENT STRIPES - 20 MILS	12000	LF	\$0.75	\$9,000.00
685.12	YELLOW EPOXY REFLECTORIZED PAVEMENT STRIPES - 20 MILS	9800	LF	\$0.75	\$7,350.00
	<b>SUBTOTAL (2013 Dollars)</b>				<b>\$32,250.00</b>
	MPT (3%), Mobilization (4%)	7%	LS	\$2,257.50	\$2,257.50
	Contingency	20%	LS	\$6,450.00	\$6,450.00
	<b>TOTAL CONSTRUCTION COST (2013)</b>				<b>\$40,957.50</b>
	Design Fees	5%	LS	\$2,047.88	\$2,047.88
	Construction Inspection Fees	15%	LS	\$6,143.63	\$6,143.63
	<b>TOTAL PROJECT COST (2013)</b>				<b>\$49,149.00</b>

**Inner Loop East Reconstruction  
Project**

**MAY 2013**

**Detailed No Build Traffic Signal  
Costs**

ITEM #	DESCRIPTION	QUANTITY	PAY UNIT	UNIT PRICE	AMOUNT
<b>Traffic Signals (New)</b>					
206.03	CONDUIT EXCAVATION AND BACKFILL INCLUDING SURFACE RESTORATION	2030	LF	\$10.00	\$20,300.00
680.10020001	POWDER COATING TRAFFIC SIGNAL POLE - MAST ARM	4	EA	\$1,750.00	\$7,000.00
680.5001	POLE EXCAVATION AND CONCRETE FOUNDATION	14	CY	\$900.00	\$12,960.00
680.5002	CONCRETE BASE FOR CONTROLLER CABINET	1	EA	\$1,600.00	\$1,600.00
680.510301	PULLBOX-CIRCULAR, 24 INCH DIAMETER, REINFORCED CONCRETE	7	EA	\$1,100.00	\$7,700.00
680.510401	PULLBOX-CIRCULAR, 30 INCH DIAMETER, REINFORCED CONCRETE	5	EA	\$1,250.00	\$6,250.00
680.520106	CONDUIT, METAL STEEL, ZINC COATED, 2"	1000	LF	\$10.50	\$10,500.00
680.520108	CONDUIT, METAL STEEL, ZINC COATED, 3"	400	LF	\$15.00	\$6,000.00
680.520110	CONDUIT, METAL STEEL, ZINC COATED, 4"	20	LF	\$25.00	\$500.00
680.521603MO	CONDUIT, PVC SCHEDULE 80, 1" DIAMETER	80	LF	\$6.50	\$520.00
680.521610MO	CONDUIT, PVC SCHEDULE 80, 4" DIAMETER	1500	LF	\$8.50	\$12,750.00
680.54	INDUCTANCE LOOP INSTALLATION	1200	LF	\$9.75	\$11,700.00
680.71	SHIELDED LEAD-IN CABLE	2800	LF	\$1.75	\$4,900.00
680.72	INDUCTANCE LOOP WIRE	600	LF	\$0.65	\$390.00
680.730208	SIGNAL CABLE, 2 CONDUCTORS, 08 AWG	50	LF	\$4.75	\$237.50
680.730714	SIGNAL CABLE 7 CONDUCTORS, 14 AWG	1200	LF	\$4.50	\$5,400.00
680.730914	SIGNAL CABLE 9 CONDUCTORS, 14 AWG	2400	LF	\$5.25	\$12,600.00
680.79000001	REMOVE TRAFFIC SIGNAL EQUIPMENT	1	LS	\$10,000.00	\$10,000.00
680.802708MO	INSTALL ACTUATED 8 PHASE GROUND MOUNTED TRAFFIC SIGNAL CABINET AND EQUIP. (FURNISHED BY COUNTY)	1	EA	\$2,000.00	\$2,000.00
680.809908MO	ACTUATED 8 PHASE GROUND MOUNTED TRAFFIC SIGNAL CABINET AND EQUIP. (PURCHASED FROM COUNTY)	1	EA	\$3,750.00	\$3,750.00
680.810121MO	TRAFFIC SIGNAL MODULE - 12" DIA., RED BALL, LED	8	EA	\$90.00	\$720.00

680.810123MO	TRAFFIC SIGNAL MODULE - 12" DIA., YELLOW BALL, LED	8	EA	\$115.00	\$920.00
680.810125MO	TRAFFIC SIGNAL MODULE - 12" DIA., GREEN BALL, LED	8	EA	\$125.00	\$1,000.00
680.810128MO	TRAFFIC SIGNAL MODULE - 12" DIA., BIMODAL YELLOW/GREEN ARROW, LED	4	EA	\$175.00	\$700.00
680.810308	INSTALL BALL/ ARROW LED TRAFFIC SIGNAL MODULE	28	EA	\$60.00	\$1,680.00
680.810601	TRAFFIC SIGNAL SECTION - POLYCARBONATE, TYPE I, 12 INCH	28	EA	\$225.00	\$6,300.00
680.8111	TRAFFIC SIGNAL BRACKET ASSEMBLY - 1 WAY	8	EA	\$275.00	\$2,200.00
680.813104	INSTALL LED PEDESTRIAN SIGNAL MODULE	8	EA	\$60.00	\$480.00
680.813109	PEDESTRIAN SIGNAL SECTION - POLYCARBONATE, TYPE I - FOR 16 INCH BY 18 INCH LED MODULE	8	EA	\$375.00	\$3,000.00
680.8141	PEDESTRIAN SIGNAL BRACKET MOUNT ASSEMBLY	8	EA	\$200.00	\$1,600.00
680.820030MO	TRAFFIC SIGNAL POLE MAST ARM COMBINATION ANCHOR BASE (30')	4	EA	\$4,250.00	\$17,000.00
680.8205	OVERHEAD SIGN ASSEMBLY, TYPE E	8	EA	\$600.00	\$4,800.00
680.821618MO	16"X18" PED. SIGNAL - PERSON (FULL) HAND (FULL) 2 DIGIT COUNTDOWN TIMER MODULE - TYPE A UNITS	8	EA	\$350.00	\$2,800.00
680.8225	PEDESTRIAN PUSHBUTTON AND SIGN - WITHOUT POST	8	EA	\$225.00	\$1,800.00
680.854000MO	TRAFFIC SIGNAL MAST ARM, 40 FEET ARM LENGTH	4	EA	\$2,000.00	\$8,000.00
680.995101MO	FIBER-OPTIC CABLE (PURCHASED FROM COUNTY)	750	LF	\$3.50	\$2,625.00
680.996101MO	INSTALL FIBER-OPTIC CABLE (FURNISHED)	750	LF	\$5.00	\$3,750.00
	<b>SUBTOTAL (2013 Dollars) (Per Signal)</b>				<b>\$196,432.50</b>
	MPT (5%), Survey Operations(1%), Mobilization (4%)	10%	LS	\$19,643.25	\$19,643.25
	Contingency	20%	LS	\$39,286.50	\$39,286.50
	<b>CONSTRUCTION COST (2013) (Per Signal)</b>				<b>\$255,362.25</b>
	<i>Number of Signals</i>	<b>6</b>			
	<b>TOTAL CONSTRUCTION COST (2013)</b>				<b>\$1,532,173.50</b>
	Design Fees	12%	LS	\$183,860.82	\$183,860.82
	Construction Inspection Fees	15%	LS	\$229,826.03	\$229,826.03
	<b>TOTAL PROJECT COST (2013)</b>				<b>\$1,945,860.35</b>

**Inner Loop East Reconstruction  
Project**

**MAY 2013**

**Detailed No Build Monroe  
Bridge Costs**

ITEM #	DESCRIPTION	QUANTITY	PAY UNIT	UNIT PRICE	AMOUNT
<b><u>Monroe Avenue Bridge (BIN 1021630)</u></b>					
<b>Joint Rehabilitation (2015, 2030, 2045)</b>					
502.20020018	PARTIAL DEPTH PORTLAND CEMENT CONCRETE SAW CUTS	450	LF	\$6.00	\$2,700.00
567.60	ARMORLESS BRIDGE JOINT SYSTEM	225	LF	\$165.00	\$37,125.00
567.60000015	REMOVAL OF EXISTING STEEL JOINT SYSTEMS	225	LF	\$80.00	\$18,000.00
	<b>SUBTOTAL (2013 Dollars)</b>				<b>\$57,825.00</b>
	MPT (3%), Survey Operations(2%), Mobilization (4%)	9%	LS	\$5,204.25	\$5,204.25
	Contingency	20%	LS	\$11,565.00	\$11,565.00
	<b>TOTAL CONSTRUCTION COST (2013)</b>				<b>\$74,594.25</b>
	Design Fees	10%	LS	\$7,459.43	\$7,459.43
	Construction Inspection Fees	15%	LS	\$11,189.14	\$11,189.14
	<b>TOTAL PROJECT COST (2013)</b>				<b>\$93,242.81</b>
<b>Deck Inlay (2020, 2040)</b>					
558.02	LONGITUDINAL SAWCUT GROOVING OF STR. SLAB SURFACE	670	SY	\$4.50	\$3,015.00
559.18960118	PROTECTIVE SEALING OF STR. CONC. ON BR. DECK OVERLAYS	6000	SF	\$0.75	\$4,500.00
579.02	REINFORCING BAR EXPOSURE	6000	SF	\$20.00	\$120,000.00
584.310901	OVERLAY CONCRETE - CLASS DP - TYPE 9 FRICTION	670	SY	\$100.00	\$67,000.00
	<b>SUBTOTAL (2013 Dollars)</b>				<b>\$194,515.00</b>
	MPT (5%), Survey Operations(2%), Mobilization (4%)	11%	LS	\$21,396.65	\$21,396.65
	Contingency	20%	LS	\$38,903.00	\$38,903.00

	<b>TOTAL CONSTRUCTION COST (2013)</b>				<b>\$254,814.65</b>
	Design Fees	10%	LS	\$25,481.47	\$25,481.47
	Construction Inspection Fees	15%	LS	\$38,222.20	\$38,222.20
	<b>TOTAL PROJECT COST (2013)</b>				<b>\$318,518.31</b>
	<b>Concrete &amp; Steel Rehabilitation (2025)</b>				
559.16960118	PROTECTIVE SEALING OF STRUCTURAL CONCRETE	4500	SF	\$1.90	\$8,550.00
564.XXXX	STEEL REPAIR	1	LS	\$15,000.00	\$15,000.00
582.06	REMOVAL OF STRUCTURAL CONC. - REPL. WITH CLS. D CONC.	1200	SY	\$110.00	\$132,000.00
585.XX	STRUCTURAL LIFTING	2	EA	\$2,500.00	\$5,000.00
	<b>SUBTOTAL (2013 Dollars)</b>				<b>\$160,550.00</b>
	MPT (5%), Survey Operations(2%), Mobilization (4%)	11%	LS	\$17,660.50	\$17,660.50
	Contingency	20%	LS	\$32,110.00	\$32,110.00
	<b>TOTAL CONSTRUCTION COST (2013)</b>				<b>\$210,320.50</b>
	Design Fees	12%	LS	\$25,238.46	\$25,238.46
	Construction Inspection Fees	15%	LS	\$31,548.08	\$31,548.08
	<b>TOTAL PROJECT COST (2015)</b>				<b>\$267,107.04</b>
	<b>Bridge Washing (2015, 2017, 2019, 2021, 2023, 2025, 2027, 2029, 2031, 2033, 2035, 2037, 2039, 2041, 2043, 2045)</b>				
641.31000116	MAINTENANCE CLEANING AND WASHING OF BRIDGES - 1 SPAN	1	EA	\$900.00	\$900.00
619.01	WORK ZONE TRAFFIC CONTROL	1	LS	\$2,000.00	\$2,000.00
	<b>SUBTOTAL (2013 Dollars)</b>				<b>\$2,900.00</b>
	Survey Operations(0%), Mobilization (4%)	4%	LS	\$116.00	\$116.00
	Contingency	20%	LS	\$580.00	\$580.00
	<b>TOTAL CONSTRUCTION COST (2013)</b>				<b>\$3,596.00</b>
	Design Fees	0%	LS	\$0.00	\$0.00
	Construction Inspection Fees	15%	LS	\$539.40	\$539.40
	<b>TOTAL PROJECT COST (2013)</b>				<b>\$4,135.40</b>

**Inner Loop East  
Reconstruction Project  
Detailed No Build Broad St.  
Bridge Costs**

**MAY 2013**

ITEM #	DESCRIPTION	QUANTITY	PAY UNIT	UNIT PRICE	AMOUNT
<b>Broad Street Bridge (BIN 1050149)</b>					
<b>Bridgel Rehabilitation (2015)</b>					
<u>Concrete &amp; Steel Rehab</u>					
559.1696011 8	PROTECTIVE SEALING OF STRUCTURAL CONCRETE	4000	SF	\$1.90	\$7,600.00
564.XXXX	STEEL REPAIR	1	LS	\$15,000.00	\$15,000.00
582.06	REMOVAL OF STRUCTURAL CONC. - REPL. WITH CLS. D CONC.	600	SY	\$110.00	\$66,000.00
585.XX	STRUCTURAL LIFTING	2	EA	\$2,500.00	\$5,000.00
<u>Replace Deck &amp; Joints</u>					
557.0109	SUPERSTRUCTURE SLAB WITH INTEGRAL WEARING SURFACE	1190	SY	\$300.00	\$357,000.00
557.2009	STRUCT. APPROACH SLAB WITH INTEGRAL WEARING SURF.	314	SF	\$205.00	\$64,370.00
557.30	SIDEWALKS AND SAFETY WALKS	150	SY	\$550.00	\$82,500.00
558.02	LONGIT. SAWCUT GROOVING OF STRUCT. SLAB SURFACE	1200	SY	\$4.50	\$5,400.00
559.1896011 8	PROTECTIVE SEALING OF STR. CONC. ON NEW BRIDGE DECKS	13520	SF	\$0.75	\$10,140.00
567.60	ARMORLESS BRIDGE JOINT SYSTEM	285	LF	\$165.00	\$47,025.00
568.51	STEEL BRIDGE RAILING (FOUR RAIL)	225	LF	\$155.00	\$34,875.00
580.02	REM. OF STEEL SUPPORTED STR. SLAB (W SHEAR CONN.)	10700	SF	\$15.00	\$160,500.00
580.04	REMOVAL OF CONCRETE APPROACH SLAB	2820	SF	\$4.00	\$11,280.00
<u>Replace Pier</u>					
202.19	REMOVAL OF SUBSTRUCTURES	106	CY	\$200.00	\$21,200.00
555.08	FOOTING CONCRETE, CLASS HP	85	CY	\$400.00	\$34,000.00
555.09	CONCRETE FOR STRUCTURES, CLASS HP	190	CY	\$675.00	\$128,250.00
556.0202	EPOXY COATED BAR REINFORCEMENT FOR STRUCTURES	41250	LB	\$1.55	\$63,937.50
<u>Replace bearings &amp; Pedestal</u>					
555.11	CONCRETE FOR STRUCTURES, CLASS DP	16	CY	\$2,600.00	\$41,600.00
556.0202	EPOXY COATED BAR REINFORCEMENT FOR STRUCTURES	2240	LB	\$1.55	\$3,472.00
565.20XX	TYPE EB BEARINGS	64	EA	\$1,300.00	\$83,200.00
580.01	REMOVAL OF STRUCTURAL	15	CY	\$1,900.00	\$28,500.00

	CONCRETE				
585.XX	STRUCTURAL LIFTING OPERATIONS - TYPE X	28	EA	\$2,500.00	\$70,000.00
586.03	DRILLING AND GROUTING REINF. BARS WITH PULLOUT TESTS	252	EA	\$60.00	\$15,120.00
589.52	REMOVAL OF EXISTING STEEL	64	EA	\$350.00	\$22,400.00
	<b>SUBTOTAL (2013 Dollars)</b>				<b>\$1,378,369.50</b>
	MPT (5%), Survey Operations(4%), Mobilization (4%)		13%	LS	\$179,188.04
	Contingency	20%	LS	\$275,673.90	\$275,673.90
	<b>TOTAL CONSTRUCTION COST (2013)</b>				<b>\$1,833,231.44</b>
	Design Fees	12%	LS	\$219,987.77	\$219,987.77
	Construction Inspection Fees	15%	LS	\$274,984.72	\$274,984.72
	<b>TOTAL PROJECT COST (2015)</b>				<b>\$2,328,203.92</b>
	<b>Paint Structural Steel (2015, 2027, 2039)</b>				
570.03000X	LEAD ITEMS	1	LS	\$10,000.00	\$10,000.00
574.0100XX	STRUCTURAL STEEL PAINTING: OVERCOATING	1	LS	\$100,000.00	\$100,000.00
	<b>SUBTOTAL (2013 Dollars)</b>				<b>\$110,000.00</b>
	MPT (5%), Survey Operations(0%), Mobilization (4%)		9%	LS	\$9,900.00
	Contingency	20%	LS	\$22,000.00	\$22,000.00
	<b>TOTAL CONSTRUCTION COST (2013)</b>				<b>\$141,900.00</b>
	Design Fees	12%	LS	\$17,028.00	\$17,028.00
	Construction Inspection Fees	15%	LS	\$21,285.00	\$21,285.00
	<b>TOTAL PROJECT COST (2013)</b>				<b>\$180,213.00</b>
	<b>Joint Rehabilitation (2030, 2045)</b>				
502.2002001 8	PARTIAL DEPTH PORTLAND CEMENT CONCRETE SAW CUTS	570	LF	\$6.00	\$3,420.00
567.60	ARMORLESS BRIDGE JOINT SYSTEM	285	LF	\$165.00	\$47,025.00
567.6000001 5	REMOVAL OF EXISTING STEEL JOINT SYSTEMS	285	LF	\$80.00	\$22,800.00
	<b>SUBTOTAL (2013 Dollars)</b>				<b>\$73,245.00</b>
	MPT (3%), Survey Operations(2%), Mobilization		9%	LS	\$6,592.05

	(4%)				
	Contingency	20%	LS	\$14,649.00	\$14,649.00
	<b>TOTAL CONSTRUCTION COST (2013)</b>				<b>\$94,486.05</b>
	Design Fees	10%	LS	\$9,448.61	\$9,448.61
	Construction Inspection Fees	15%	LS	\$14,172.91	\$14,172.91
	<b>TOTAL PROJECT COST (2013)</b>				<b>\$118,107.56</b>
<b>Deck Inlay (2035)</b>					
558.02	LONGITUDINAL SAWCUT GROOVING OF STR. SLAB SURFACE	890	SY	\$4.50	\$4,005.00
559.18960118	PROTECTIVE SEALING OF STR. CONC. ON BR. DECK OVERLAYS	8000	SF	\$0.75	\$6,000.00
579.02	REINFORCING BAR EXPOSURE	8000	SF	\$20.00	\$160,000.00
584.310901	OVERLAY CONCRETE - CLASS DP - TYPE 9 FRICTION	890	SY	\$100.00	\$89,000.00
	<b>SUBTOTAL (2013 Dollars)</b>				<b>\$259,005.00</b>
	MPT (5%), Survey Operations(2%), Mobilization (4%)		11%	LS	\$28,490.55
	Contingency	20%	LS	\$51,801.00	\$51,801.00
	<b>TOTAL CONSTRUCTION COST (2013)</b>				<b>\$339,296.55</b>
	Design Fees	10%	LS	\$33,929.66	\$33,929.66
	Construction Inspection Fees	15%	LS	\$50,894.48	\$50,894.48
	<b>TOTAL PROJECT COST (2013)</b>				<b>\$424,120.69</b>
<b>Concrete &amp; Steel Rehabilitation (2040)</b>					
559.16960118	PROTECTIVE SEALING OF STRUCTURAL CONCRETE	4000	SF	\$1.90	\$7,600.00
564.XXXX	STEEL REPAIR	1	LS	\$90,000.00	\$90,000.00
582.06	REMOVAL OF STRUCTURAL CONC. - REPL. WITH CLS. D CONC.	1000	SY	\$110.00	\$110,000.00
585.XX	STRUCTURAL LIFTING	9	EA	\$2,500.00	\$22,500.00
	<b>SUBTOTAL (2013 Dollars)</b>				<b>\$230,100.00</b>
	MPT (5%), Survey Operations(2%), Mobilization (4%)		11%	LS	\$25,311.00
	Contingency	20%	LS	\$46,020.00	\$46,020.00
	<b>TOTAL CONSTRUCTION COST (2013)</b>				<b>\$301,431.00</b>

	Design Fees	12%	LS	\$36,171.72	\$36,171.72
	Construction Inspection Fees	15%	LS	\$45,214.65	\$45,214.65
	<b>TOTAL PROJECT COST (2013)</b>				<b>\$382,817.37</b>
	<b>Bridge Washing (2015, 2017, 2019, 2021, 2023, 2025, 2027, 2029, 2031, 2033, 2035, 2037, 2039, 2041, 2043, 2045)</b>				
641.3100011 6	MAINTENANCE CLEANING AND WASHING OF BRIDGES - 1 SPAN	1	EA	\$950.00	\$950.00
619.01	WORK ZONE TRAFFIC CONTROL	1	LS	\$2,000.00	\$2,000.00
	<b>SUBTOTAL (2013 Dollars)</b>				<b>\$2,950.00</b>
	Survey Operations(0%), Mobilization (4%)		4%	LS	\$118.00
	Contingency	20%	LS	\$590.00	\$590.00
	<b>TOTAL CONSTRUCTION COST (2013)</b>				<b>\$3,658.00</b>
	Design Fees	0%	LS	\$0.00	\$0.00
	Construction Inspection Fees	15%	LS	\$548.70	\$548.70
	<b>TOTAL PROJECT COST (2013)</b>				<b>\$4,206.70</b>

**Inner Loop East Reconstruction  
Project  
Detailed No Build East Ave. Bridge  
Costs**

**MAY 2013**

ITEM #	DESCRIPTION	QUANTITY	PAY UNIT	UNIT PRICE	AMOUNT
<b>East Avenue Bridge (BIN 1035240)</b>					
<b>Bridge Rehabilitation (2015)</b>					
<u>Concrete &amp; Steel Rehabilitation</u>					
559.16960118	PROTECTIVE SEALING OF STRUCTURAL CONCRETE	3600	SF	\$1.90	\$6,840.00
564.XXXX	STEEL REPAIR	1	LS	\$15,000.00	\$15,000.00
582.06	REMOVAL OF STRUCTURAL CONC. - REPL. WITH CLS. D CONC.	550	SF	\$110.00	\$60,500.00
585.XX	STRUCTURAL LIFTING	2	EA	\$2,500.00	\$5,000.00
<u>Deck Replacement</u>					
557.0109	SUPERSTRUCTURE SLAB W/ INTEGRAL WEARING SURF.	817	SY	\$300.00	\$245,100.00
557.2009	STRUCT. APPROACH SLAB W/ INTEGRAL WEARING SURF.	223	SF	\$205.00	\$45,715.00
557.30	SIDEWALKS AND SAFETY WALKS	135	SY	\$550.00	\$74,250.00
558.02	LONGIT. SAWCUT GROOVING OF STRUCT. SLAB SURFACE	754	SY	\$4.50	\$3,393.00
559.18960118	PROT. SEALING OF STR. CONC. ON NEW BRIDGE DECKS	9350	SF	\$0.75	\$7,012.50
567.60	ARMORLESS BRIDGE JOINT SYSTEMS	200	LF	\$165.00	\$33,000.00
568.51	STEEL BRIDGE RAILING (FOUR RAIL)	225	LF	\$155.00	\$34,875.00
580.02	REM. OF STEEL SUPPORTED STR. SLAB (W SHEAR CONN.)	7350	SF	\$15.00	\$110,250.00
580.04	REMOVAL OF CONCRETE APPROACH SLAB	2000	SF	\$4.00	\$8,000.00
<b>SUBTOTAL (2013 Dollars)</b>					<b>\$648,935.50</b>
MPT (5%), Survey Operations(4%), Mobilization (4%)			13%	LS	\$84,361.62
Contingency		20%	LS	\$129,787.10	\$129,787.10
<b>TOTAL CONSTRUCTION COST (2013)</b>					<b>\$863,084.22</b>
Design Fees		12%	LS	\$103,570.11	\$103,570.11
Construction Inspection Fees		15%	LS	\$129,462.63	\$129,462.63
<b>TOTAL PROJECT COST (2013)</b>					<b>\$1,096,116.95</b>

<b>Paint Structural Steel (2015, 2027, 2040)</b>					
570.03000X	LEAD ITEMS	1	LS	\$10,000.00	\$10,000.00
574.0100XX	STRUCTURAL STEEL PAINTING: OVERCOATING	1	LS	\$100,000.00	\$100,000.00
	<b>SUBTOTAL (2013 Dollars)</b>				<b>\$110,000.00</b>
	MPT (5%), Survey Operations(0%), Mobilization (4%)		9%	LS	\$9,900.00
	Contingency	20%	LS	\$22,000.00	\$22,000.00
	<b>TOTAL CONSTRUCTION COST (2013)</b>				<b>\$141,900.00</b>
	Design Fees	12%	LS	\$17,028.00	\$17,028.00
	Construction Inspection Fees	15%	LS	\$21,285.00	\$21,285.00
	<b>TOTAL PROJECT COST (2013)</b>				<b>\$180,213.00</b>
<b>Bearing Lubrication (2015, 2030, 2045)</b>					
565.43020015	BRIDGE BEARING RESTORATION	28	EA	\$1,100.00	\$30,800.00
	<b>SUBTOTAL (2013 Dollars)</b>				<b>\$30,800.00</b>
	MPT (3%), Survey Operations(0%), Mobilization (4%)		7%	LS	\$2,156.00
	Contingency	20%	LS	\$6,160.00	\$6,160.00
	<b>TOTAL CONSTRUCTION COST (2013)</b>				<b>\$39,116.00</b>
	Design Fees	5%	LS	\$1,955.80	\$1,955.80
	Construction Inspection Fees	15%	LS	\$5,867.40	\$5,867.40
	<b>TOTAL PROJECT COST (2013)</b>				<b>\$46,939.20</b>
<b>Joint Rehabilitation (2030, 2045)</b>					
502.20020018	PARTIAL DEPTH PORTLAND CEMENT CONCRETE SAW CUTS	400	LF	\$6.00	\$2,400.00
567.60	ARMORLESS BRIDGE JOINT SYSTEM	200	LF	\$165.00	\$33,000.00
567.60000015	REMOVAL OF EXISTING STEEL JOINT SYSTEMS	200	LF	\$80.00	\$16,000.00
	<b>SUBTOTAL (2013 Dollars)</b>				<b>\$51,400.00</b>
	MPT (3%), Survey Operations(2%), Mobilization (4%)		9%	LS	\$4,626.00
	Contingency	20%	LS	\$10,280.00	\$10,280.00
	<b>TOTAL CONSTRUCTION COST (2013)</b>				<b>\$66,306.00</b>

	Design Fees	10%	LS	\$6,630.60	\$6,630.60
	Construction Inspection Fees	15%	LS	\$9,945.90	\$9,945.90
	<b>TOTAL PROJECT COST (2013)</b>				<b>\$82,882.50</b>
	<b>Deck Inlay (2035)</b>				
558.02	LONGITUDINAL SAWCUT GROOVING OF STR. SLAB SURFACE	595	SY	\$4.50	\$2,677.50
559.18960118	PROTECTIVE SEALING OF STR. CONC. ON BR. DECK OVERLAYS	5350	SF	\$0.75	\$4,012.50
579.02	REINFORCING BAR EXPOSURE	5350	SF	\$20.00	\$107,000.00
584.310901	OVERLAY CONCRETE - CLASS DP - TYPE 9 FRICTION	595	SY	\$100.00	\$59,500.00
	<b>SUBTOTAL (2013 Dollars)</b>				<b>\$173,190.00</b>
	MPT (5%), Survey Operations(2%), Mobilization (4%)		11%	LS	\$19,050.90
	Contingency	20%	LS	\$34,638.00	\$34,638.00
	<b>TOTAL CONSTRUCTION COST (2013)</b>				<b>\$226,878.90</b>
	Design Fees	10%	LS	\$22,687.89	\$22,687.89
	Construction Inspection Fees	15%	LS	\$34,031.84	\$34,031.84
	<b>TOTAL PROJECT COST (2013)</b>				<b>\$283,598.63</b>
	<b>Concrete &amp; Steel Rehabilitation (2040)</b>				
559.16960118	PROTECTIVE SEALING OF STRUCTURAL CONCRETE	3600	SF	\$1.90	\$6,840.00
564.XXXX	STEEL REPAIR	1	LS	\$90,000.00	\$90,000.00
582.06	REMOVAL OF STRUCTURAL CONC. - REPL. WITH CLS. D CONC.	900	SY	\$110.00	\$99,000.00
585.XX	STRUCTURAL LIFTING	9	EA	\$2,500.00	\$22,500.00
	<b>SUBTOTAL (2013 Dollars)</b>				<b>\$218,340.00</b>
	MPT (5%), Survey Operations(2%), Mobilization (4%)		11%	LS	\$24,017.40
	Contingency	20%	LS	\$43,668.00	\$43,668.00
	<b>TOTAL CONSTRUCTION COST (2013)</b>				<b>\$286,025.40</b>
	Design Fees	12%	LS	\$34,323.05	\$34,323.05
	Construction Inspection Fees	15%	LS	\$42,903.81	\$42,903.81
	<b>TOTAL PROJECT COST (2013)</b>				<b>\$363,252.26</b>

<b>Bridge Washing (2015, 2017, 2019, 2021, 2023, 2025, 2027, 2029, 2031, 2033, 2035, 2037, 2039, 2041, 2043, 2045)</b>					
641.31000116	MAINTENANCE CLEANING AND WASHING OF BRIDGES - 1 SPAN	1	EA	\$950.00	\$950.00
619.01	WORK ZONE TRAFFIC CONTROL	1	LS	\$2,000.00	\$2,000.00
	<b>SUBTOTAL (2013 Dollars)</b>				<b>\$2,950.00</b>
	Survey Operations(0%), Mobilization (4%)		4%	LS	\$118.00
	Contingency	20%	LS	\$590.00	\$590.00
	<b>TOTAL CONSTRUCTION COST (2013)</b>				<b>\$3,658.00</b>
	Design Fees	0%	LS	\$0.00	\$0.00
	Construction Inspection Fees	15%	LS	\$548.70	\$548.70
	<b>TOTAL PROJECT COST (2013)</b>				<b>\$4,206.70</b>

**Inner Loop East  
Reconstruction Project  
Detailed No Build Retaining  
Walls Costs**

**MAY 2013**

ITEM #	DESCRIPTION	QUANTITY	PAY UNIT	UNIT PRICE	AMOUNT
<b>Retaining Walls</b>					
<b>Wall Rehabilitation (2020)</b>					
582.06	REMOVAL OF STRUCTURAL CONC. - REPL. WITH CLS. D CONC.	1200	SY	\$110.00	\$132,000.00
568.51	STEEL BRIDGE RAILING (4 RAIL)	8000	LF	\$150.00	\$1,200,000.00
587.02	BRIDGE RAILING REMOVAL AND STORAGE	8000	LF	\$40.00	\$320,000.00
	<b>SUBTOTAL (2013 Dollars)</b>				<b>\$1,652,000.00</b>
	MPT (5%), Survey Operations(1%), Mobilization (4%)		10%	LS	\$165,200.00
	Contingency	20%	LS	\$330,400.00	\$330,400.00
	<b>TOTAL CONSTRUCTION COST (2013)</b>				<b>\$2,147,600.00</b>
	Design Fees	12%	LS	\$257,712.00	\$257,712.00
	Construction Inspection Fees	15%	LS	\$322,140.00	\$322,140.00
	<b>TOTAL PROJECT COST (2013)</b>				<b>\$2,727,452.00</b>
<b>Wall Rehabilitation (2030)</b>					
582.06	REMOVAL OF STRUCTURAL CONC. - REPL. WITH CLS. D CONC.	2350	SY	\$110.00	\$258,500.00
	<b>SUBTOTAL (2013 Dollars)</b>				<b>\$258,500.00</b>
	MPT (5%), Survey Operations(1%), Mobilization (4%)		10%	LS	\$25,850.00
	Contingency	20%	LS	\$51,700.00	\$51,700.00
	<b>TOTAL CONSTRUCTION COST (2013)</b>				<b>\$336,050.00</b>
	Design Fees	12%	LS	\$40,326.00	\$40,326.00
	Construction Inspection Fees	15%	LS	\$50,407.50	\$50,407.50
	<b>TOTAL PROJECT COST (2013)</b>				<b>\$426,783.50</b>

<b>Wall Rehabilitation (2040)</b>					
582.06	REMOVAL OF STRUCTURAL CONC. - REPL. WITH CLS. D CONC.	3500	SY	\$110.00	\$385,000.00
	<b>SUBTOTAL (2013 Dollars)</b>				<b>\$385,000.00</b>
	MPT (5%), Survey Operations(1%), Mobilization (4%)		10%	LS	\$38,500.00
	Contingency	20%	LS	\$77,000.00	\$77,000.00
	<b>TOTAL CONSTRUCTION COST (2013)</b>				<b>\$500,500.00</b>
	Design Fees	12%	LS	\$60,060.00	\$60,060.00
	Construction Inspection Fees	15%	LS	\$75,075.00	\$75,075.00
	<b>TOTAL PROJECT COST (2013)</b>				<b>\$635,635.00</b>

**Inner Loop East Reconstruction Project  
Newly Created Parcels Value Summary**

Year	Project Year	Land Value Increase (2013 \$)
2014	0	\$0
2015	1	\$0
2016	2	\$0
2017	3	\$8,037,000
2018	4	\$0
2019	5	\$0
2020	6	\$0
2021	7	\$0
2022	8	\$0
2023	9	\$0
2024	10	\$0
2025	11	\$0
2026	12	\$0
2027	13	\$0
2028	14	\$0
2029	15	\$0
2030	16	\$0
2031	17	\$0
2032	18	\$0
2033	19	\$0
2034	20	\$0
2035	21	\$0
2036	22	\$0
2037	23	\$0
2038	24	\$0
2039	25	\$0
2040	26	\$0
2041	27	\$0
2042	28	\$0
2043	29	\$0
2044	30	\$0
2045	31	\$0
<b>Total</b>	<b>0-31</b>	<b>\$8,037,000</b>
<b>Net Present Value 3% Discount Rate</b>		<b>\$7,354,994</b>
<b>Net Present Value 7% Discount Rate</b>		<b>\$6,560,586</b>

<b>Value of New Development Parcels</b>		Source
Total Land (Acres)	8.9	Stantec
Residential - For Sale Square Feet	73,452	HR&A Development Scenarios
Residential - Rental Square Feet	546,800	HR&A Development Scenarios
Retail Square Feet	89,490	HR&A Development Scenarios
Office Square Feet	85,320	HR&A Development Scenarios
Residential Land Value - For Sale	\$1,117,000	Calculation
Residential Land Value - Rental	\$5,919,000	Calculation
Retail Land Value	\$629,000	Calculation
Office Land Value	\$372,000	Calculation
<b>Total Land Value (2013 \$)</b>	<b>\$8,037,000</b>	<b>Calculation</b>

**Inner Loop East Reconstruction Project  
Existing Parcel Value Increase Summary**

Year	Project Year	Land Value Increase (2013 \$)
2014	0	\$0
2015	1	\$0
2016	2	\$0
2017	3	\$16,741,870
2018	4	\$0
2019	5	\$0
2020	6	\$0
2021	7	\$0
2022	8	\$0
2023	9	\$0
2024	10	\$0
2025	11	\$0
2026	12	\$0
2027	13	\$0
2028	14	\$0
2029	15	\$0
2030	16	\$0
2031	17	\$0
2032	18	\$0
2033	19	\$0
2034	20	\$0
2035	21	\$0
2036	22	\$0
2037	23	\$0
2038	24	\$0
2039	25	\$0
2040	26	\$0
2041	27	\$0
2042	28	\$0
2043	29	\$0
2044	30	\$0
2045	31	\$0
<b>Total</b>	<b>0-31</b>	<b>\$16,741,870</b>
<b>Net Present Value 3% Discount Rate</b>		<b>\$15,321,183</b>
<b>Net Present Value 7% Discount Rate</b>		<b>\$13,666,353</b>

### Observed Property Value Increases Surrounding Highway Removal Projects

	Value Increase over City Average Growth	Time Period	Years	Compounded Annual Growth Rate
Boston Central Artery	38%	15 Years	1988 - 2003	2.17%
Milwaukee Park East Freeway	20%	5 Years	2001 - 2006	3.71%
San Francisco Central Freeway	25%	At least 13 years	~1992 - 2005	1.73%

Sources: *The Metropolitan Highway System & Urban Transformation, Congress for the New Urbanism, City of Seattle*

### Estimated Property Value Increases for Rochester Inner Loop East Project

Land Use Type	2013 Land Value	5% Increase over 2013 Values
Residential	\$ 39,567,500	\$ 1,978,375
Commercial	\$ 210,660,350	\$ 10,533,018
Industrial	\$ 302,400	\$ 15,120
Other	\$ 83,304,055	\$ 4,165,203
Vacant	\$ 1,003,100	\$ 50,155
<b>Total</b>	<b>\$ 334,837,405</b>	<b>\$ 16,741,870</b>

Source: *Rochester Parcel Assessments and HR&A*

**Inner Loop East Reconstruction Project  
Prevented Injuries & Accidents Summary**

Year	Project Year	Safety Value Increase (2013 \$)
2014	0	\$0
2015	1	\$0
2016	2	\$0
2017	3	\$464,390
2018	4	\$464,390
2019	5	\$464,390
2020	6	\$464,390
2021	7	\$464,390
2022	8	\$464,390
2023	9	\$464,390
2024	10	\$464,390
2025	11	\$464,390
2026	12	\$464,390
2027	13	\$464,390
2028	14	\$464,390
2029	15	\$464,390
2030	16	\$464,390
2031	17	\$464,390
2032	18	\$464,390
2033	19	\$464,390
2034	20	\$464,390
2035	21	\$464,390
2036	22	\$464,390
2037	23	\$464,390
2038	24	\$464,390
2039	25	\$464,390
2040	26	\$464,390
2041	27	\$464,390
2042	28	\$464,390
2043	29	\$464,390
2044	30	\$464,390
2045	31	\$464,390
<b>Total</b>	<b>0-31</b>	<b>\$13,467,310</b>
<b>Net Present Value 3% Discount Rate</b>		<b>\$8,399,403</b>
<b>Net Present Value 7% Discount Rate</b>		<b>\$4,980,024</b>

**Inner Loop East Reconstruction Project  
Safety Assumptions**

<b>Value of Avoided Injuries and Fatalities</b>	<b>2012 \$</b>	<b>2013 \$*</b>
AIS Level 1 - Minor	\$27,300	\$27,590
AIS Level 2 - Moderate	\$427,700	\$432,247
AIS Level 3 - Serious	\$955,500	\$965,658
AIS Level 4 - Severe	\$2,420,600	\$2,446,333
AIS Level 5 - Critical	\$5,396,300	\$5,453,667
AIS Level 6 - Unsurvivable	\$9,100,000	\$9,196,741

\* Values Inflated to 2013 dollars using the BLS Consumer Price Index (CPI-U)

Source: Department of Transportation, *Guidance on Treatment of the Economic Value of a Statistical Life in U.S. Department of Transportation Analyses (2013)*

<b>Value of Property Damage Only Crashes</b>	<b>2010 \$</b>	<b>2013 \$*</b>
Property Damages Only (PDO) Crashes	\$3,206	\$3,420

Source: National Highway Traffic Safety Administration, *The Economic Impact of Motor Vehicle Crashes (2000)*

**Distribution of Severity-Unknown Injuries**

No Injury	0.2154
AIS Level 1 - Minor	0.6273
AIS Level 2 - Moderate	0.10400
AIS Level 3 - Serious	0.03860
AIS Level 4 - Severe	0.00440
AIS Level 5 - Critical	0.01030
AIS Level 6 - Unsurvivable	0.00000
<b>Expected Value of Avoided Injury (2013 \$)</b>	<b>\$166,472</b>

Source: National Highway Traffic Safety Administration (2011)

**Inflation Calculation**

<b>Year</b>	<b>Price Level</b>	<b>Inflation to 2013</b>
2013	232.531	1.000
2012	230.085	1.011
2010	218.009	1.067

\* Price levels are for the month of April, given the lack of full-year data for 2013

STATE OF NEW YORK  
 DEPARTMENT OF TRANSPORTATION  
 TRAFFIC AND SAFETY DIVISION  
**SAFETY BENEFITS  
 EVALUATION FORM**

TRAFFIC & SAFETY IDENTIFICATION NUMBER										
EVALUATION OF ALTERNATE NO:										
STUDY PERIOD	From	To	No. of Yrs.							
	1/1/2005	3/7/2008	3.16							

LOCATION	Route No. or Street Name	State Highway No.	From or At Reference Marker							
	Inner Loop (Howell/Monroe to Charlotte St)	Rt. 940T	Howell Street Off - Ramp							
PROJECT DATA	At Intersection with (if applicable)	State Highway No.	To Reference Marker							
	Charlotte Street Off - Ramp									
REDUCTION CALCULATION	PROPOSED IMPROVEMENT:  The proposed improvements include the conversion of an existing high speed Inner Loop expressway, with adjacent parallel low speed city streets, back to the original street grid using sustainable low speed street network principles.									
	Present AADT: <u>6840</u> Future AADT: <u>6840</u> Volume Correction Factor (VCF): <u>1</u>									
METHOD I (From Reduction Factor Table) Average Reduction Factor _____%										
METHOD II (Engineering Analysis)					METHOD III (For General Upgradings)					
a. Total Accidents: <u>40</u>					a. Existing Accident Rate: _____					

b. Accidents Reduced:	<u>0</u>	(but severity reduced)	b. Future Accident Rate:	<u>                    </u>
C. Calculated RF (b/a):	<u>0%</u>		c. Difference (a-b):	<u>0</u>
			d. Calculated RF (c/a):	<u>#DIV/0!</u> %

**BRIEFLY EXPLAIN HOW EXPECTED REDUCTION WAS DERIVED:**

By converting a high speed expressway to a low speed boulevard, the effect will be a reduction of the severity of accident types. 32.5% of the prior-years' accidents that occurred along the expressway resulted in personal injuries while the two adjacent city streets, Pitkin and Union, experienced 7% and 12% injuries, respectively. By eliminating the high speed expressway component, the severity of future accidents is expected to emulate those along the existing low speed city streets, estimated to be the average of the two, or 9.5%.

**PRE-PROJECT COST PER ACCIDENT CALCULATION**

TYPE	NO. ACC.		COST/ACC	=	ACC. COST
Fatal	<u>0</u>	x	<u>\$9,196,741</u>	=	<u>\$0</u>
Injury	<u>13.0</u>	x	<u>\$166,472</u>	=	<u>\$2,164,137</u>
PDO	<u>27.0</u>	x	<u>\$3,420</u>	=	<u>\$92,328</u>
<b>Total</b>	<b>40</b>				<b>\$ 2,256,465</b>

**POST-PROJECT COST PER ACCIDENT CALCULATION**

TYPE	NO. ACC.		COST/ACC	=	ACC. COST
Fatal	<u>0</u>	x	<u>\$9,196,741</u>	=	<u>\$0</u>
Injury	<u>4.0</u>	x	<u>\$166,472</u>	=	<u>\$665,888</u>
PDO	<u>36.0</u>	x	<u>\$3,420</u>	=	<u>\$123,104</u>
<b>Total</b>	<b>40</b>				<b>\$ 788,992</b>

BEFORE COST/ACC (Tot. Acc. Cost/ Tot. Acc.) \$56,412

BEFORE COST/ACC (Tot. Acc. Cost/ Tot. Acc.) \$19,725

SAFETY BENEFITS

**A. ESTIMATED ANNUAL ACCIDENT COST WITH NO IMPROVEMENT (Pre-Project):**

$$\text{ACC/YR } 12.66 \times \text{VCF } 1 \times \text{BEFORE COST/ACCIDENT } 56,412 = 714,071.09$$

**B. ESTIMATED ANNUAL ACCIDENT COST WITH PROPOSED IMPROVEMENT (Post-Project):**

$$\text{ACC/YR } 12.66 \times \text{VCF } 1 \times (1.00 - 0 \text{ RF}) \times \text{AVG. COST/ACC. } 19,725 = 249,681.09$$

**ESTIMATED ANNUAL SAFETY BENEFITS (A-B) =** \$464,390

# REAL ESTATE MARKET ANALYSIS

The purpose of the market analysis is to evaluate the feasibility of development on land created as part of the Inner Loop East Reconstruction Project. The market analysis begins with an overview of macroeconomic development drivers such as demographic and economic trends. HR&A then considered the demand for residential, office, retail, and hotel uses.

Following the market analysis, HR&A conducted a residual land value analysis to examine the financial feasibility of each market-supportable use and any gaps that must be filled with alternative sources of funding. HR&A recommended feasible development programs under two scenarios:

- Scenario 1, where the Project is completed according to current specifications; and
- Scenario 2, in which Park Avenue is extended through privately held parcels and across the Inner Loop.

## EXECUTIVE SUMMARY

### *Demographics and Economic Trends*

- In 2012, Monroe County was home to approximately 750,000 residents. The City of Rochester had 210,150 residents, which represented approximately 28% of the County's population. The Greater Center City had 30,300 residents, which is approximately 4% of the County's population.
- The population in the City of Rochester and the Greater Center City began to decline in the 1950s and has yet to recover. The City and the Greater Center City continued to lose residents over the past decade, the majority of which were in the prime working age cohorts.
- The population between 20 and 34 years of age make up nearly half of all residents living in the Greater Center City area. This age group is partially comprised of the 35,400 students enrolled at one of Rochester's colleges and universities, and young professionals who desire the urban lifestyle offered downtown.
- Of all residents in Monroe County, 34% have earned a bachelor's degree or higher. In Rochester and the Greater Center City, those with a bachelor's degree or higher represent 25% and 41% of the population, respectively.
- In 2011, there were approximately 378,900 workers in Monroe County, 137,600 in the City of Rochester, and 51,500 in the Greater Center City area. Education services, management of companies and enterprises, manufacturing, and health care and social assistance are especially concentrated in the County.
- The County lost approximately 22,000 private-sector jobs between 2001 and 2011, largely from the manufacturing sector. Over the same period, the education and medical sectors have added over 16,000 jobs. Continued growth in these sectors is expected, and provides a key opportunity for the revitalization of the City and Greater Center City areas.

## **Residential**

- Housing stock in the Rochester area is aged; within the City of Rochester, 60% of the housing stock is over 70 years old, and only 2% has been built since 2000.
- The majority of the current rental product is comprised of one- and two-bedroom units, with rental rates ranging from \$1,100 to \$1,500 per month. In 2012, rental vacancy was at 4%, and 50% of new product coming to market was absorbed in the same quarter, indicating the strength of the rental market.
- The majority of the current for-sale product is comprised of two- to four-bedroom units, with sales ranging from \$290,000 to \$400,000. In recent years, there has been little for-sale development and vacancy has remained at 3%.
- HR&A found that there is room within the market for new residential development that caters to residents who prefer to live in walkable, urban areas.

## **Office**

- Approximately 72% of the County's 31 million square feet of Class A and Class B office space is located in the City of Rochester. The Greater Center City area has approximately 13 million square feet of office space.
- The office market is characterized by an outdated Class A office stock that is priced below Class A buildings in similarly-sized markets. The City and Greater Center City area have relatively high vacancy rates, low achievable price per square foot, and minimal gross absorption of existing stock.
- Despite low demand over the recent past, there will be future demand for space generated by the shift and increase in area employment, particularly in the education and medical sectors, business services and startups. The demand analysis shows that approximately 90,000 square feet of new office development may be supportable on the low end, and 180,000 square feet of development at the high end over a seven year period from 2014 to 2020

## **Retail**

- Retail development in Rochester is primarily in a suburban, auto-based format, concentrated in shopping centers outside downtown Rochester. Retail offerings within downtown are limited and rents are low, at \$13 per square foot, but there is a desire for additional restaurants and entertainment-based retail by area stakeholders to support multifamily development downtown.
- HR&A approximates that downtown Rochester could currently support 170,000 square feet of retail development, largely in general merchandise, convenience goods, such as limited-service eating places, a downtown grocery, and health & personal care stores. This estimate would grow as other real estate uses are developed on site and additional residents and workers are brought to the area.

## **Hotel**

- There are 67 hotels in Monroe County, 44 in Rochester, and six in the Greater Center City area. Supply has increased in the County from 2007 to 2012, but decreased in the City and the Greater Center City area.
- Occupancy rates, average daily rates, and revenue per available room characterize a very weak hotel market in the County, City and downtown.
- Business travelers account for the majority of visitors to the Greater Center City area. As business travel continues to increase post-recession, there will likely be increased hotel demand. However, supply significantly exceeds demand and there is little support for new hotel development.
- Targeting leisure travelers who visit Rochester's cultural institutions could bolster a hotel's performance and increase the potential for development of a well-situated hotel that leverages connections with those institutions.

## DEMOGRAPHICS

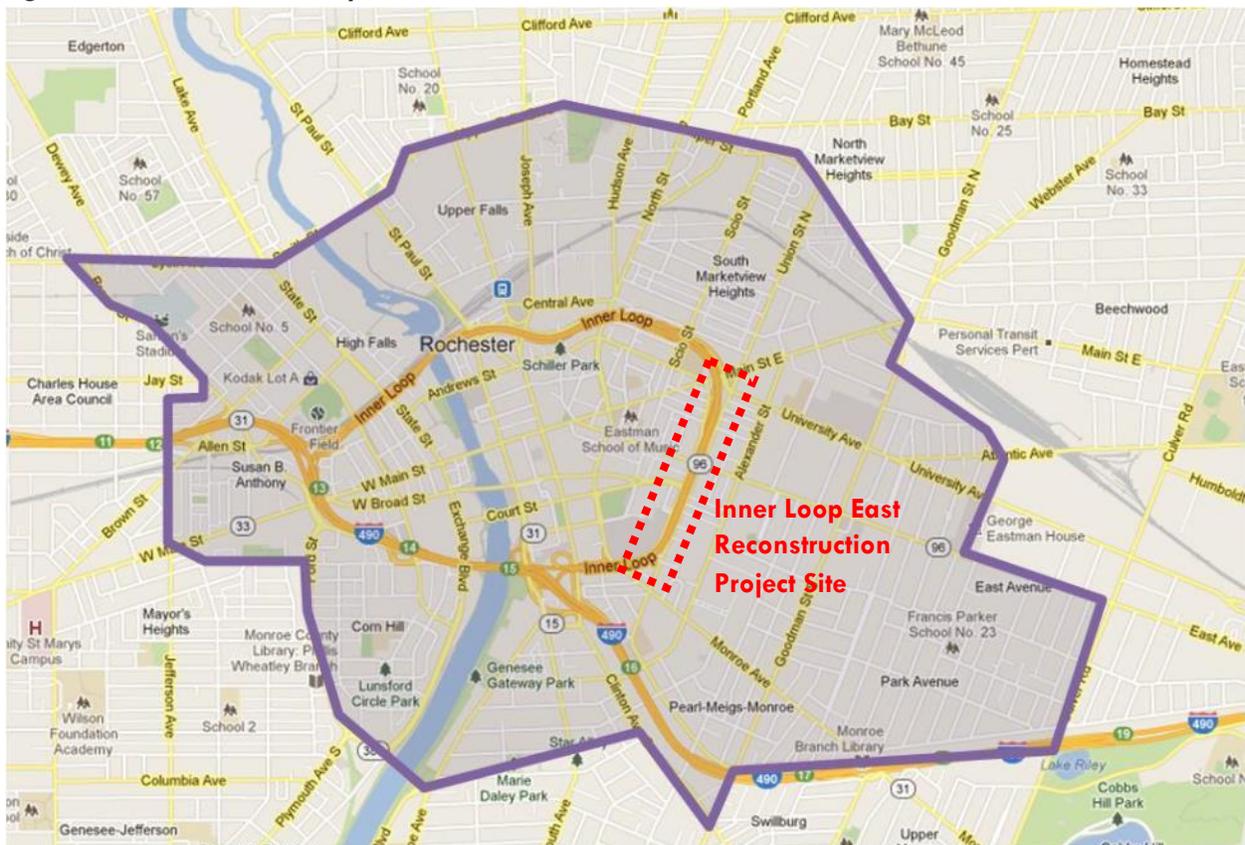
HR&A analyzed demographic information including trends in population, households, age, income, and education of residents in Monroe County, the City of Rochester, and the Greater Center City area over a period from 2000 to the current year. HR&A's analysis presents an understanding of recent trends and likely future trends to determine the socio-economic context in which the Rochester Inner Loop East reconstruction will occur.

HR&A utilized the most recent and accurate data available. Data sources include ESRI, which reports and projects data based on the U.S. Census Bureau, the Bureau of Labor Statistics, and the Bureau of Economic Analysis.

### Study Area

HR&A selected Monroe County as the broadest region of demographic analysis. HR&A compared County trends to those in the City of Rochester and in the Greater Center City area. HR&A adapted the Greater Center City area from the geography defined in the 2003 Center City Master Plan. **Figure 14** shows the extent of this geography – a region that includes the entire Center City area within the Inner Loop as well as close-in neighborhoods on the east side and limited areas adjacent to the north, south and west edges of Center City.

**Figure 14: Greater Center City Area of Rochester, New York**



Source: Google, HR&A

**Population Trends**

The population in Monroe County grew from close to 490,000 residents in 1950 to nearly 750,000 residents in 2012. The City of Rochester experienced a different trajectory, reaching its peak in the 1950s, with approximately 330,000 residents.<sup>10</sup> Over the next decade, however, residents migrated away from the City into the suburbs and other areas, following national trends of suburban flight. By 2000, the City’s population fell to approximately 220,000 a decline of over one-third since 1950.

More recently, Monroe County’s population has relatively plateaued, increasing only 2% since 2000, or 0.1% annually. With 210,150 residents, Rochester’s population represents approximately 28% of the County’s population – a decline of nearly thirty percentage points from its peak in 1950. There were nearly 30,300 residents in the Greater Center City area of Rochester. These residents represent approximately 15% of Rochester’s total population. Since 2000, the populations in the City of Rochester and Greater Center City have decreased by 4% and 1%, respectively. However, within the immediate Downtown/Inner Loop area, the population growth rate has far outpaced Monroe County.

**Figure 15: Population Trends, 2000-2012**

	2000	2010	2012	Annualized Growth 2000-2012	Growth 2000-2012
Monroe County	735,343	744,344	748,529	0.1%	2%
Rochester	219,921	210,565	210,153	-0.4%	-4%
Greater Center City	30,753	30,090	30,293	-0.1%	-1%
Downtown/Inner Loop	3,975	4,431	4,610	1.24%	16%

Source: ESRI, HR&A

**Average Household Size**

The average household size in Monroe County and the City of Rochester was approximately 2.4 and 2.3 persons per household, respectively in 2012. This household size has remained largely constant over the past decade, as shown in Within the Greater Center City area, the average household size was approximately 1.7 persons per household.

**Figure 16: Average Household Size, 2000 to 2012**

	2000	2012
Monroe County	2.5	2.4
Rochester	2.4	2.3
Greater Center City	1.8	1.7

Source: U.S. Census Bureau

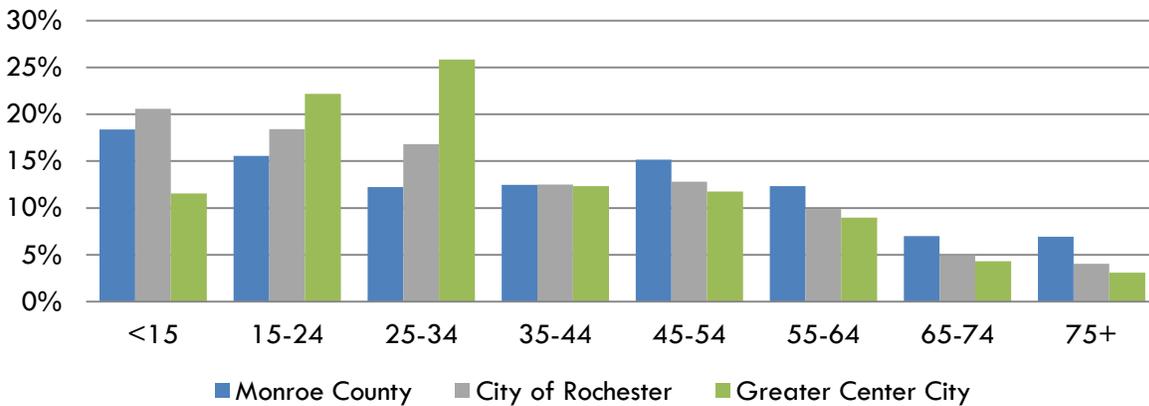
**Age Distribution**

The age distribution shown in

**Figure 17** demonstrates the concentration of the student and young professional population between the ages of 15 and 34 in the Greater Center City area, whom make up nearly half of all residents.

<sup>10</sup> U.S. Census Bureau

**Figure 17: Age Distribution, 2012**

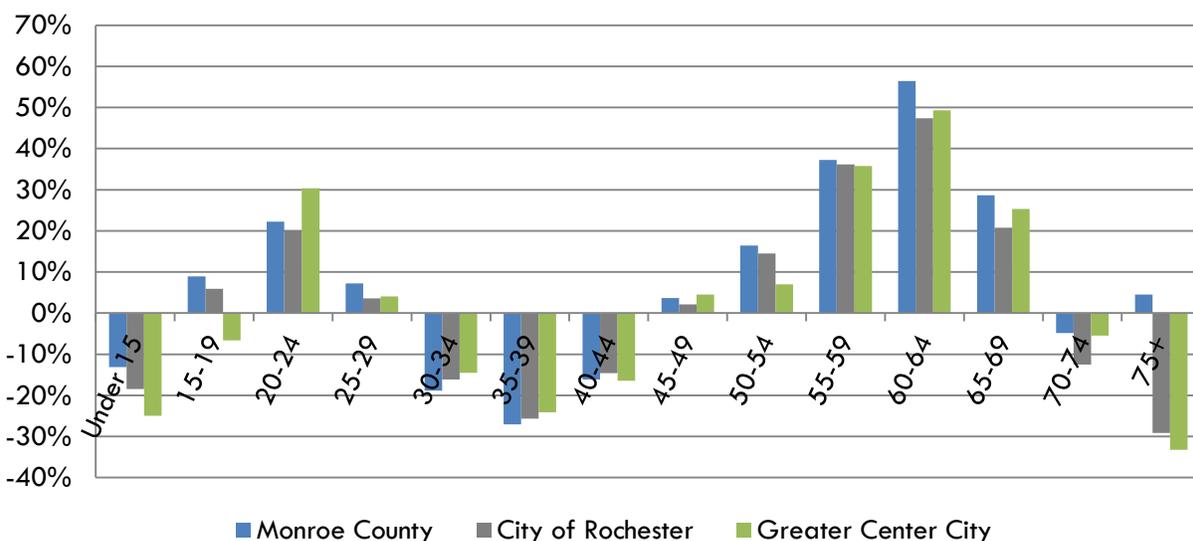


Source: ESRI, HR&A

The median age in Monroe County is 38.7, significantly higher than 31.2 in Rochester and 30.0 in the Greater Center City. Residents over the age of 65 account for 14% of total residents in Monroe County, 9% of those in Rochester, and 7% of those in the Greater Center City area.

**Figure 18** presents the change by age cohort from 2000 to 2010. Monroe County, the City of Rochester, and the Greater Center City area have each experienced a rise in population in the age cohorts in the ranges of 20-30 and 50-70, a result of the aging of the baby boomer and echo-boomer generations which coincide with national population trends. All three study areas have also experienced a decline of the working age population.

**Figure 18: Change in Age from 2000 to 2010**



Source: ESRI, HR&A

**Income Distribution**

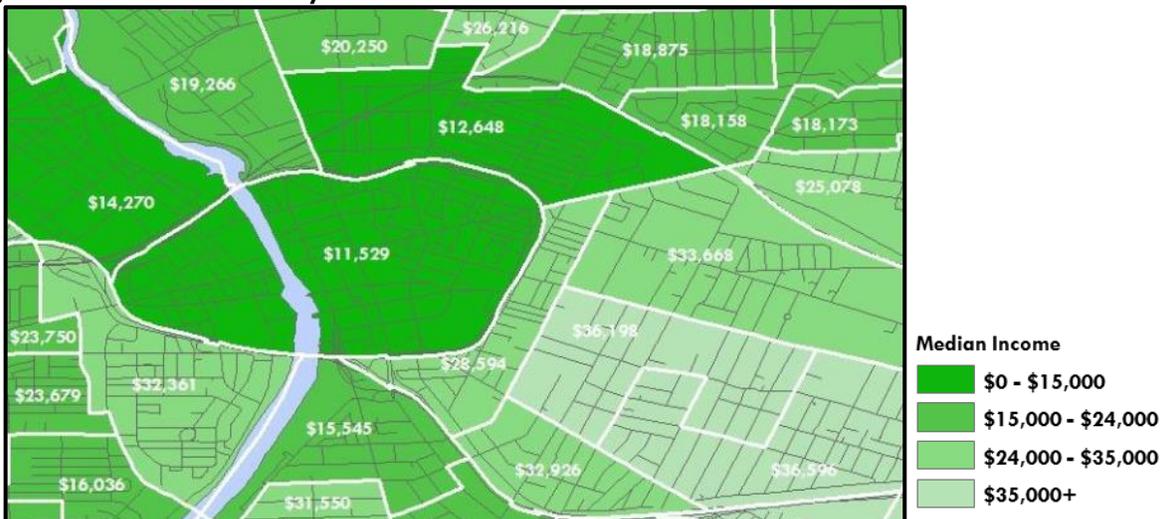
The 2012 median household income of residents in Monroe County was approximately \$51,700. This household income is significantly higher than in the City of Rochester (\$29,700) and Center City (\$27,200). The income divide is partially attributable to the large proportion of students in both the City and Greater Center City, who are more likely to hold part-time, lower wage jobs, if any job. However, a lower percentage of residents above the age of 35 earn above \$50,000 per year in Rochester and Greater Center City than those in Monroe County, indicating that wealthier households are choosing to live in the suburbs. The median household income by study area is shown in **Figure 19**.

**Figure 19: Median Household Income Distribution, 2012**



Source: U.S. Census Bureau, HR&A

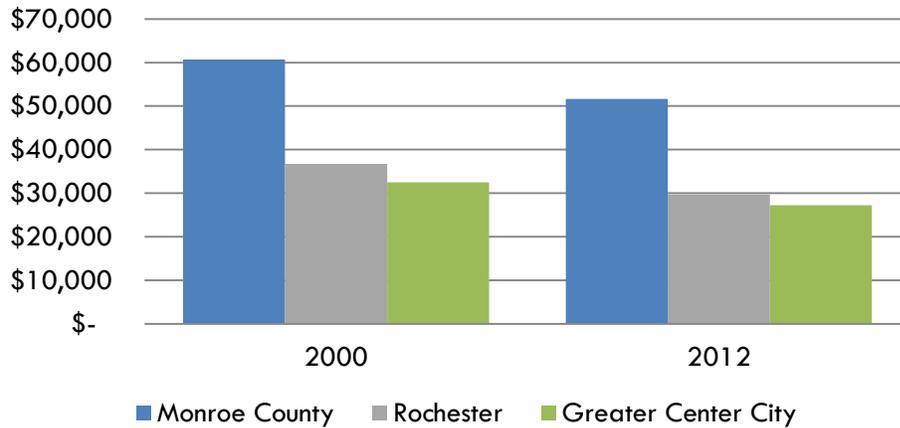
**Figure 20: Median Income by Census Tract**



Source: U.S. Census Bureau, HR&A Advisors Analysis

Between 2000 and 2012, median household incomes have dropped in real terms in all three study areas. As shown in **Figure 21**, median household income has dropped by 15% in Monroe County, by 19% in the City of Rochester, and by 16% in the Greater Center City area.

**Figure 21: Change in Median Household Income from 2000 to 2012**



Source: U.S. Census Bureau, HR&A

### **Educational Attainment**

Residents who have earned a bachelor’s degree or higher represent 34% of residents in Monroe County and 25% in the City of Rochester. Within Rochester, these residents are concentrated in the Greater Center City area, where 41% of residents hold higher degrees (**Figure 22**). The high level of educational attainment in the City makes it the “13<sup>th</sup> brainiest city in America” by The Atlantic Cities (June 2012) – just above Gainesville, Florida and just below Austin, Texas, two cities that house major research universities.<sup>11</sup>

**Figure 22: Population Age 25+ Years by Educational Attainment**

Highest Degree Achieved	Monroe County	City of Rochester	Greater Center City
High school degree	26%	28%	17%
Associate's degree	11%	9%	9%
Bachelor's degree	20%	14%	24%
Master's degree	11%	7%	11%
Professional school degree	2%	1%	3%
Doctorate degree	1%	1%	3%
<b>At Least High School Degree</b>	<b>71%</b>	<b>61%</b>	<b>68%</b>
<b>Bachelor's Degree or Higher</b>	<b>34%</b>	<b>25%</b>	<b>41%</b>

Source: ASC Population Summary, 2005-2009; ESRI; HR&A

<sup>11</sup> “America’s Brainiest Cities”, The Atlantic Cities, 2012 ([www.theatlanticcities.com](http://www.theatlanticcities.com))

Monroe County has over 69,500 undergraduate and graduate students. Over 60%, roughly 44,100, of those students attend one of the six largest full-time colleges/universities located in the Rochester area. These schools are presented in **Figure 23**. The University of Rochester is three miles south of Greater Center City. Other notable schools in the City of Rochester include the Eastman School of Music, with approximately 1,000 students, and Monroe Community College, a two-year university with over 17,000 students. According to the most recent American Community Survey in 2011, there were approximately 21,000 college/university students residing in the City of Rochester.

**Figure 23: Five Largest Four-Year Colleges and Universities in the Rochester Area, 2013**

<b>College/University</b>	<b>Student Population</b>
Rochester Institute of Technology	16,166
University of Rochester	10,319
SUNY Brockport	8,742
Saint John Fisher College	3,977
Nazareth College	3,102
Roberts Wesleyan College	1,823
<b>Total</b>	<b>44,129</b>

Source: U.S. News and World Report, HR&A

## ECONOMIC TRENDS

Despite downsizing by its signature corporate giants, Eastman Kodak and Xerox Corporation, the Rochester region remains an active economic center for Upstate New York. In January 2012, the Brookings Institute ranked the Rochester metro area as “one of the 50 best economies in the world and third best in the U.S.” The Institute’s ranking was based on statistics such as the number of patents per capita, commuting times, and income growth rates from 2010 to 2011.<sup>12</sup> As previously noted, the Rochester area has a wealth of intellectual capital and increasing household incomes. However, the City of Rochester supports fewer jobs than it did in 2000 and the unemployment rate is higher than the national average. The following presents an overview of the City of Rochester’s current economic conditions in the context of the region as a whole.

### Employment

In the 1980s, Eastman Kodak, Xerox Corporation and Bausch & Lomb, Inc. together employed over 50% of Rochester’s workers, with Kodak alone employing more than 60,000 workers at its peak in 1973.<sup>13</sup> By 2000, Kodak employed 21,600 workers.<sup>14</sup> Today, Kodak employs only 5,129 in the Rochester region.<sup>15</sup> Over the same period, Xerox Corporation relocated its corporate headquarters from Rochester to Connecticut. In the early 2000s, Xerox eliminated approximately 1,400 jobs.<sup>16</sup> Not surprisingly, the declines at these companies impacted the entire region.

**Figure 24: Employment**

	2011	Share of County Employment
Monroe County	378,901	100%
Rochester	137,600	36%
Greater Center City	51,489	14%

Source: U.S. Census Bureau

**Figure 25** shows the Greater Rochester area’s top 20 employers by employment in 2013.<sup>17</sup> As shown, the University of Rochester (which includes the U of R Medical Center) has emerged as the leading employer in the region, along with other healthcare companies and institutions, such as Rochester General Health (7,600 workers), Unity Health System (5,472 workers), Lifetime Healthcare Company (3,584 workers), and the Rochester Institute of Technology (3,299 workers).

<sup>12</sup> Brookings Institute Global Metro Monitor, 2012

<sup>13</sup> “Advice to Help Kodak Compete in the New World of Digital Photography” The New York Times, 2004 ([www.nytimes.com](http://www.nytimes.com))

<sup>14</sup> Center for Government Research, 2013

<sup>15</sup> Greater Rochester Enterprise, 2013

<sup>16</sup> “9,000 Job Cuts To Save Xerox \$1 Billion” The New York Times, 1998 ([www.nytimes.com](http://www.nytimes.com))

<sup>17</sup> Greater Rochester, as defined by the Greater Rochester Enterprise, includes nine counties: Monroe, Orleans, Genesee, Wyoming, Livingston, Ontario, Wayne, Yates, and Seneca.

**Figure 25: Top 20 Greater Rochester Employers, 2013**

<b>Rank</b>	<b>Company Name</b>	<b>Rochester Employment</b>
1	University of Rochester	20,340
2	Wegmans Food Markets, Inc.	13,976
3	Rochester General Health	7,600
4	Xerox Corp.	6,116
5	Unity Health System	5,472
6	Eastman Kodak Co.	5,129
7	Paychex Inc.	3,712
8	Lifetime Healthcare Cos.	3,584
9	Rochester Institute of Technology	3,299
10	YMCA of Greater Rochester	2,732
11	Sutherland Global Services, Inc.	2,600
12	Finger Lakes Health	1,726
13	Bausch & Lomb	1,700
14	JPMorgan Chase & Co.	1,560
15	Verizon Wireless, Inc.	1,400
16	Frontier Communications Corp.	1,361
17	Carestream Health	1,250
18	Thompson Health	1,228
19	CooperVision, Inc.	1,200
20	ITT Exelis Geospacial Systems	1,184
<b>Total</b>		<b>87,169</b>

Source: Greater Rochester Enterprise, 2013

### Employment by Industry

In 2011, the largest private-sector industries in Monroe County were health care and social assistance, manufacturing, retail trade, and accommodation and food services. In order to understand the County's economic specialization, HR&A performed a location quotient analysis to compare the relative concentration of particular industries against the concentration in the U.S. as a whole. A location quotient above 1.00 indicates the industry is more concentrated in Monroe County. **Figure 26** illustrates the location quotients for major 2-digit NAICS industry sectors. Educational services, management of companies and enterprises, manufacturing, and health care and social assistance are especially concentrated in Monroe County.

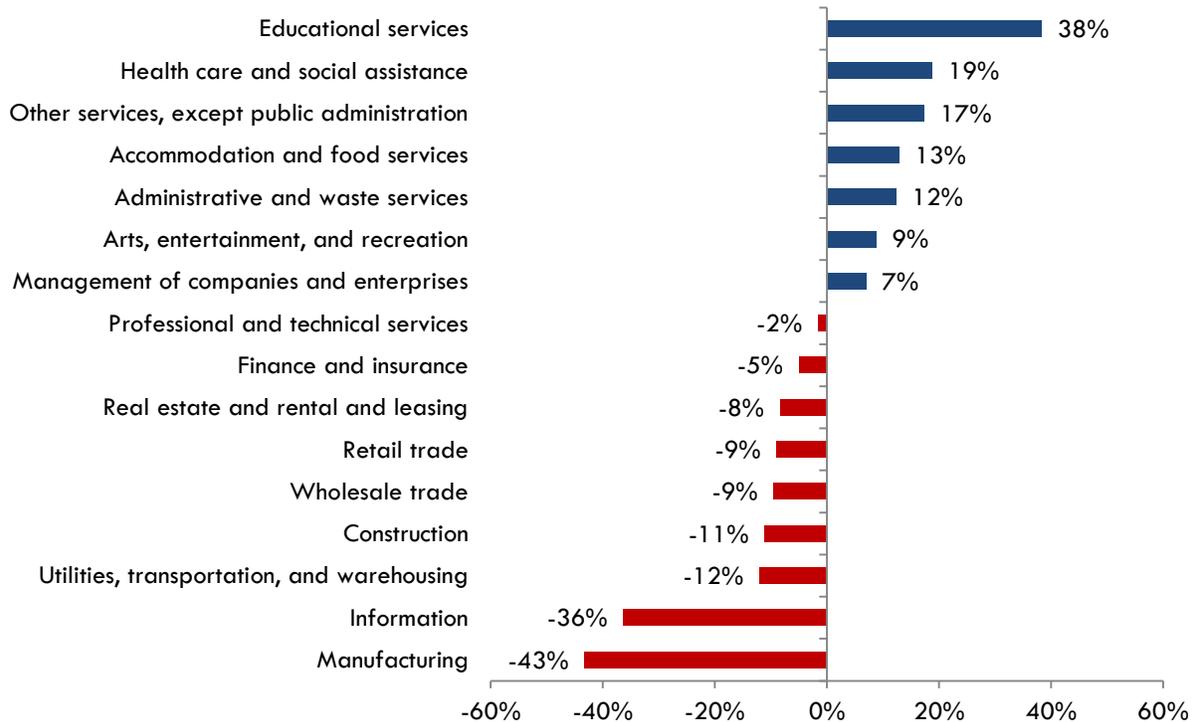
**Figure 26: Monroe County Location Quotient Analysis, 2011**

Industry	Monroe County Employment	United States Employment	Location Quotient
Agriculture, forestry, fishing and hunting	497	1,160,311	0.14
Mining, quarrying, and oil and gas extraction	102	730,048	0.05
Utilities, transportation, and warehousing	7,147	4,605,560	0.52
Construction	11,830	5,473,045	0.72
<b>Manufacturing</b>	<b>43,772</b>	<b>11,701,497</b>	<b>1.25</b>
Wholesale trade	13,486	5,545,802	0.81
Retail trade	38,680	14,666,625	0.88
Professional and technical services	19,394	7,672,567	0.84
<b>Management of companies and enterprises</b>	<b>11,413</b>	<b>1,914,543</b>	<b>1.99</b>
Administrative and waste services	22,550	7,711,123	0.98
<b>Educational services</b>	<b>24,042</b>	<b>2,545,941</b>	<b>3.15</b>
<b>Health care and social assistance</b>	<b>60,469</b>	<b>16,489,393</b>	<b>1.22</b>
Information	7,577	2,674,852	0.95
Finance and insurance	11,561	5,506,634	0.70
Real estate and rental and leasing	5,789	1,909,775	1.01
Arts, entertainment, and recreation	5,028	1,922,644	0.87
Accommodation and food services	26,110	11,371,959	0.77
Other services, except public administration	14,020	4,408,735	1.06
<u>Unclassified</u>	<u>408</u>	<u>173,741</u>	<u>0.78</u>
<b>Total Private-Sector</b>	<b>323,875</b>	<b>108,184,795</b>	<b>1.00</b>

Source: U.S. Bureau of Labor Statistics, HR&A

While the location quotients in **Figure 26** demonstrate robust levels of employment in certain sectors as compared to national employment levels, they do not demonstrate the stability of those sectors. Monroe County lost about 22,000 private-sector jobs between 2001 and 2011. To demonstrate employment trends by sector, **Figure 27** presents 2001-2011 growth rates in industries with at least 1,000 employees in 2011.

**Figure 27: Monroe County Change in Employment by Industry, 2001-2011**

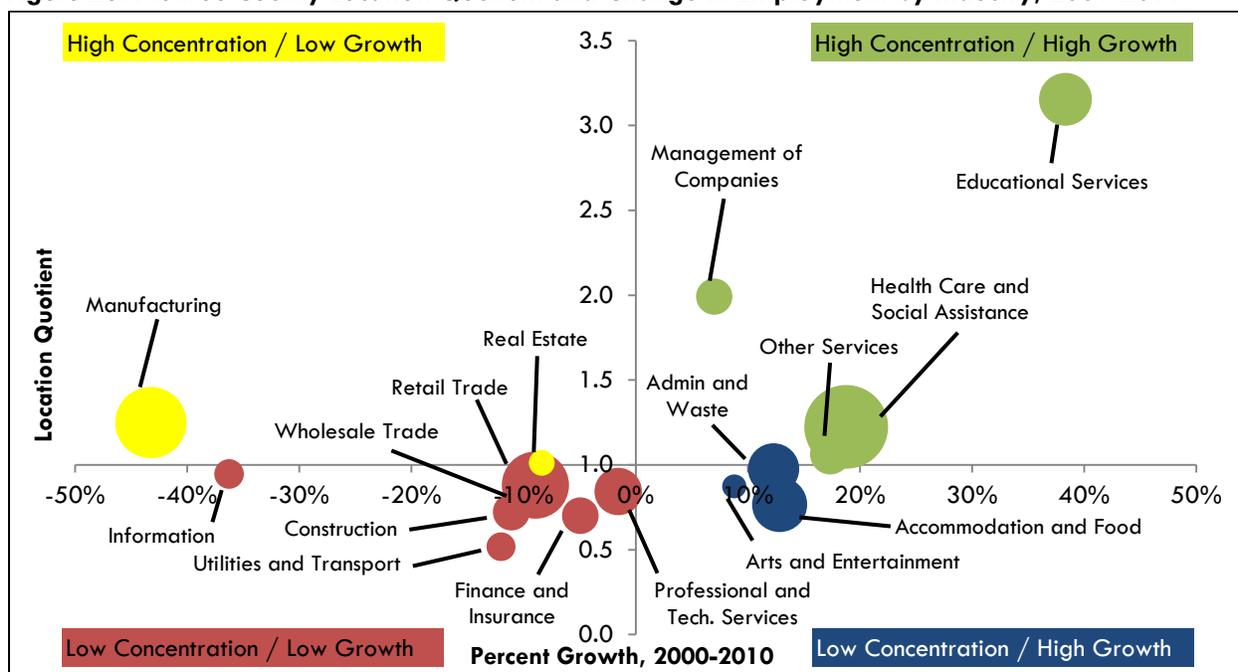


Source: U.S. Bureau of Labor Statistics, HR&A

**Figure 28** combines both location quotient and growth rate analysis. Industries are arrayed according to their location quotient (y axis) and growth rate over the past decade (x axis). High concentration / high growth industries (upper right quadrant) reflect the County’s economic strengths, while low concentration / low growth industries (lower left quadrant) indicate less robust industries. The size of the bubbles reflects the relative number of jobs in each industry. Four of the six industries in which Monroe County is specialized (educational services, health care and social assistance, management of companies and enterprises, and other series) experienced growth over the past decade. These industries, highlighted in green, are high concentration / high growth. By contrast, manufacturing, long a pillar of the County’s economy, experienced job significant loses, with employment declining by over 40% since 2001. Information, which includes technology-related employment, has also declined considerably.

This analysis attests to the growing importance of the County’s “eds and meds” (educational and medical) sectors as economic drivers, particularly in the wake of the Great Recession. These sectors have added over 16,000 jobs since 2001, and educational and medical offices uses could represent key end user segments for new space created as part of the Inner Loop East Reconstruction Project.

**Figure 28: Monroe County Location Quotient and Change in Employment by Industry, 2001-2011**



**Emerging Sectors**

Information technology and software companies have emerged from the concentration of universities and skilled professionals formerly employed by Kodak, Xerox and other image technology and optics corporations. While the manufacturing sector has contracted, startups in research and development and manufacturing have expanded. The Eastman Business Park, a 1,200 acre technology center and industrial complex in the City is home to 35 startups, including a solar cell developer, diesel fuel technology and green chemistry company, and over 3,000 workers.<sup>18</sup> Within the Greater Center City area, business service sectors, such as attorneys and accountants, are growing.

**Unemployment Rate**

The unemployment rate in Monroe County corresponds closely to the national rate of 8% in 2012. The City of Rochester has an unemployment rate that is over 2% higher than the County and U.S. While not the sign of a strong job market, the City avoided severe increases in its unemployment rate over a period when it lost nearly 14% of total jobs. The unemployment rate is expected to fall as growth in eds and meds continues and the nation as a whole recovers from the recession.

**Figure 29: Unemployment Rate, 2000-2012**

Year	City of Rochester	Monroe County	United States
2000	4.5%	3.5%	3.9%
2010	10.7%	8.0%	9.5%
2012	10.9%	8.0%	8.1%

Source: Bureau of Labor Statistics

<sup>18</sup> Eastman Business Park ([www.eastmanbusinesspark.com](http://www.eastmanbusinesspark.com))

## Conclusions

- One of the City's main challenges is recovering its residential population. The population in the City of Rochester and the Greater Center City began to decline in the 1950s and has yet to recover. The City has continued to lose residents over the past decade, the majority of which were in the prime working age cohorts. This loss has depleted the City of those age cohorts that drive the regional economy. Conversely, the rise in the more seasoned age cohorts will create further challenges for public budgets and overall economic growth. However, this trend is countered by the recent rise in population in Downtown.
- The population between 20 and 34 years of age desire the urban lifestyle offered downtown. According Urban Land Institute, "disproportionate numbers of the new urbanites are 20- to 34-year olds... Urban living provides them with thicker job and dating markets, opportunities to share rent with roommates, and plenty of things to do in their off hours, from bar-hopping to attending graduate school."<sup>19</sup> The growing number of education professionals, post-doctorate students, nurses, and others employed in medical fields are largely represented by these age groups.
- To support overall economic growth, the City of Rochester should invest in retaining the existing student population, as they will be the next generation of workers, entrepreneurs, and residents. The City will be better positioned to retain young professionals by offering amenities that appeal to residents and workers. Furthermore, students provide critical current support to a local economy as they bring a diversified preference for restaurants, bars, and shopping. Development at the Inner Loop East is one opportunity to provide some of these amenities.
- Despite severe losses of manufacturing jobs and a net loss in employment in the County, growth in eds and meds has added over 16,000 jobs over the past decade. Continued growth in these sectors is expected, and provides a key opportunity for the revitalization of the City and Greater Center City areas. Startup and technology companies have settled in the City of Rochester, primarily in incubator space and non-traditional office space. These companies include green technology, software, advanced manufacturing, and optics companies. Within the Greater Center City area, business service sectors, such as attorneys and accountants, are growing and prefer to occupy new developments in the area. These employment sectors are critical components of the commercial office space demand addressed later in this report.

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<sup>19</sup> "The Fading Differentiation between City and Suburb", Urban Land Institute, 2013 (<http://urbanland.uli.org>)

## RESIDENTIAL OVERVIEW

Rochester's demographics and economic trends drive the demand for housing in the City. HR&A analyzed current housing stock, historical pricing for housing, building permits, and interviewed local real estate professionals to define the potential for successful residential development in a revitalized Inner Loop area. HR&A then analyzed current demand for downtown residential product based on regional and national trends, and local market insight.

### ***Housing Inventory***

There are currently approximately 100,000 housing units within the City of Rochester, and over 300,000 within Monroe County. The City and County breakdown of renters versus owners in occupied units reflects typical urban versus suburban trends, as renters are more prevalent in the urban core.

**Figure 30: Residential Tenure, 2010**

	<b>Rochester City</b>	<b>Monroe County</b>
Owner-occupied units	41%	66%
Renter-occupied units	59%	34%

Source: US Census Bureau, HR&A

Housing stock in the Rochester area is aged, as 60% of the housing stock within the City of Rochester is over 70 years old, with only 2% built since 2000. Monroe County also has a predominantly older housing stock, but a slightly larger portion of housing units, 6%, have been built since 2000. Monroe County displays somewhat more even trends in date of construction, but is still predominantly older housing stock.

**Figure 31: Age of Housing Stock**

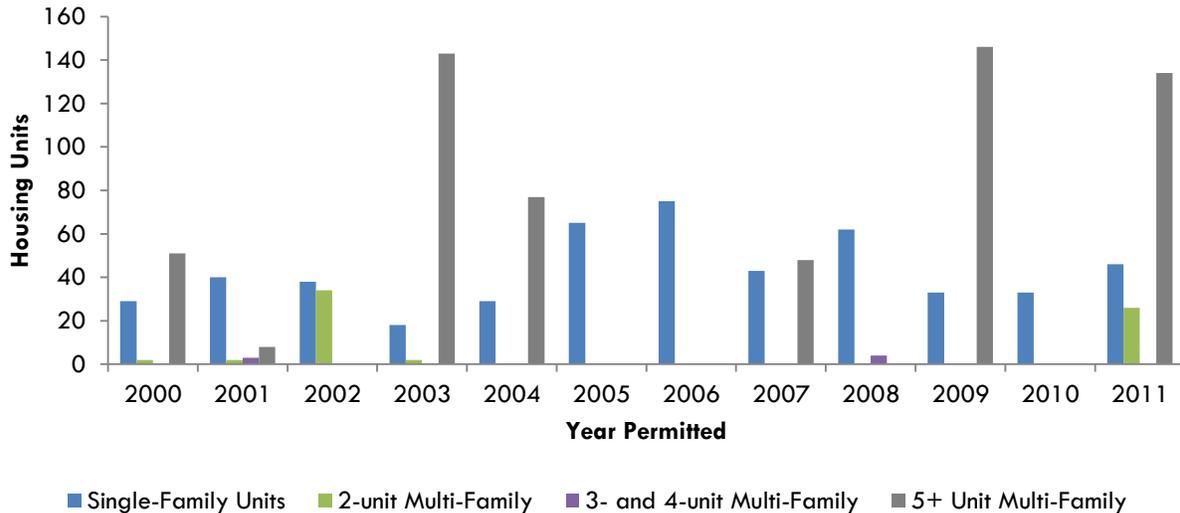
	<b>Rochester City</b>	<b>Monroe County</b>
1939 or earlier	60.9%	28.5%
1940 to 1959	17.8%	19.4%
1960 to 1979	14.9%	28.3%
1980 to 1999	4.8%	17.6%
2000 or later	1.6%	6.1%

Source: US Census Bureau, HR&A

### Building Permit Activity

The City of Rochester issued permits for 1,191 housing units during the period from 2000 to 2011. Of these, approximately 50% were for multi-family structures over five units. The majority of multi-family permits were issued recently, in 2009 and 2011. **Figure 32** below displays the spike in multi-family permits issued in recent years, emphasizing the uptick in multi-family development Downtown.

**Figure 32: Building Permits Issued in the City of Rochester, 2000 to 2011**



Source: US Census Bureau

While some building permit activity may be owed to loft conversions within the Inner Loop, the majority is likely in traditionally residential neighborhoods, such as Corn Hill on the south side of Downtown and the South Wedge. The timing of spikes in permit activity aligns with Corn Hill Landing, completed in 2005, and Erie Harbor Apartments in the South Wedge, completed in 2012.

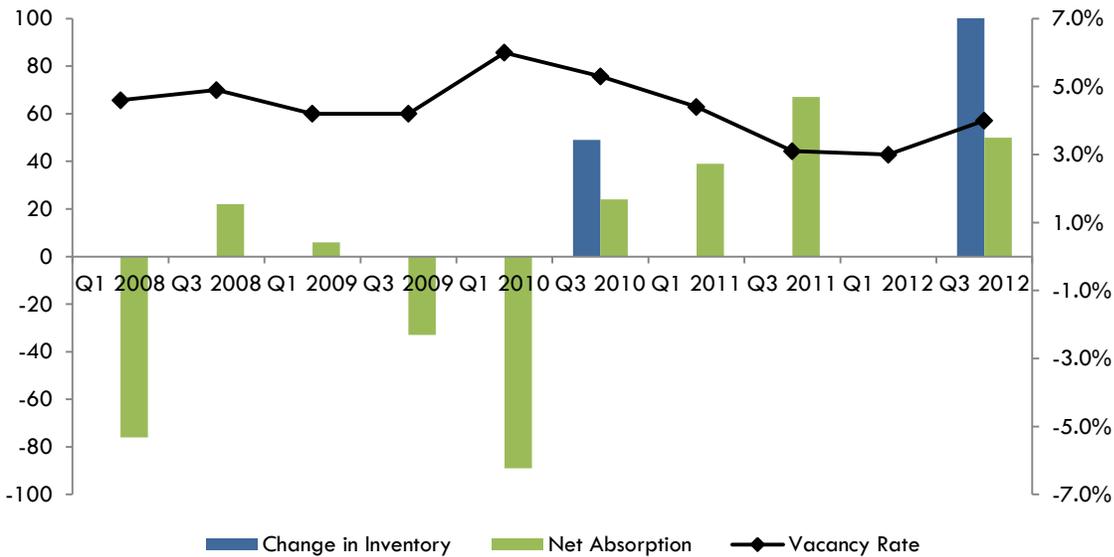
### Rental product

Current rental product in the Center City area is concentrated in one- and two-bedroom units, with market rental rates varying from \$1,100 to \$1,500 per month, in line with anticipated supportable rents based on average median income. HR&A reviewed the Rochester Downtown Development Corporation's 2011 *Survey of Downtown Rental Housing* (the "RDDC Survey"), which surveyed a similar area to the Center City boundaries, including all Inner Loop neighborhoods, and rental properties within the High Falls historic district, Corn Hill neighborhood, and Alexander and Upper East End districts. The RDDC Survey notes that per square foot rents across unit sizes vary from \$0.87 to \$1.50, with an average rent per square foot of \$1.17. This is only slightly higher than the 2007 average of \$1.10, indicating that rents have not kept pace with an annual average inflation rate of 3%.

Rental vacancy in the Center City area has remained low since late 2011, with a slight uptick in 2012 to 4%. However, during the same time period, a number of new units were brought to market (the first in a two year period), and were approximately 50 % absorbed in the same quarter. These trends are further illustrated below in **Figure 33**. Local real estate professionals report rapid lease-up periods and filling vacancies within one month of vacancy as leases turn over.

A portion of new development within the Rochester rental market is owed to the recent trend toward residential conversion of former industrial buildings to residential lofts. This is particularly true in the Greater Center City study area. The RDDC Survey reported that approximately 16 % of leasable units, or 437 units, downtown were loft conversions, with 90 additional units under development and 28 additional units proposed.<sup>20</sup>

**Figure 33: Rochester Inner Loop Rental Apartment Trends**



Source: REIS, HR&A Advisors

**For-sale product**

Vacancy among for-sale product is very low within the City of Rochester at 3%. However, minimal for-sale product has been developed in recent past years. HR&A has identified two key development types in the Greater Center City area, including townhouse-style attached housing at the Windsor Gate development (five townhouses currently under development) and stacked flat apartments at Sagamore on East (23 units).

The for-sale market in the Greater Center City area is made up of larger units than rental properties, trending toward two to four-bedrooms per unit. These properties are also priced to target a higher-income market, with current listings ranging from \$290,000 into the \$400,000s, outside the affordable range for the average Rochester household, but likely more in line with retired professionals, young professional couples, or individuals (of all ages) who prefer an urban living experience, within close walking distance to restaurants, shops, and potentially their places of work.

**Development Pipeline**

In its early 2013 Downtown Market summary, the RDDC noted that 11 residential projects were under development in Downtown Rochester. As major projects such as Erie Harbor Apartments were completed, the development pipeline narrowed. However, the pipeline still includes two unique unit types: loft conversions and the redevelopment of Midtown Tower (stacked flat apartments). Midtown Tower, a

<sup>20</sup> At least one of these, 1 Capron Lofts, will be brought to market as for-sale units rather than rental product.

conversion of a former commercial tower, scheduled to be completed in 2014, will include 160 to 180 rental units and amenities atypical to the Rochester market, including a business center, amenity space for tenants' social gatherings, and a dog park. Local real estate professionals see a rising demand for this type of urban unit and additional amenities as residents locate downtown and are particularly keen on mixed-use developments.

Conversion of industrial and historical buildings to residential lofts also continues to be a popular development trend in downtown and immediately surrounding areas. The Academy Building at 13 South Fitzhugh Street will bring 21 market-rate residential units to market in early 2013 after a six-year renovation process. Recently developed Bridge Square, which officially opened in February 2013, offers 24 loft-style units.

The pipeline does not include a large amount of for-sale product, and only one project was noted in the immediate Greater Center City area. Windsor Gate, just preparing to open, includes approximately five townhomes, concentrated in two or three-bedrooms, and in the \$300,000 price range.

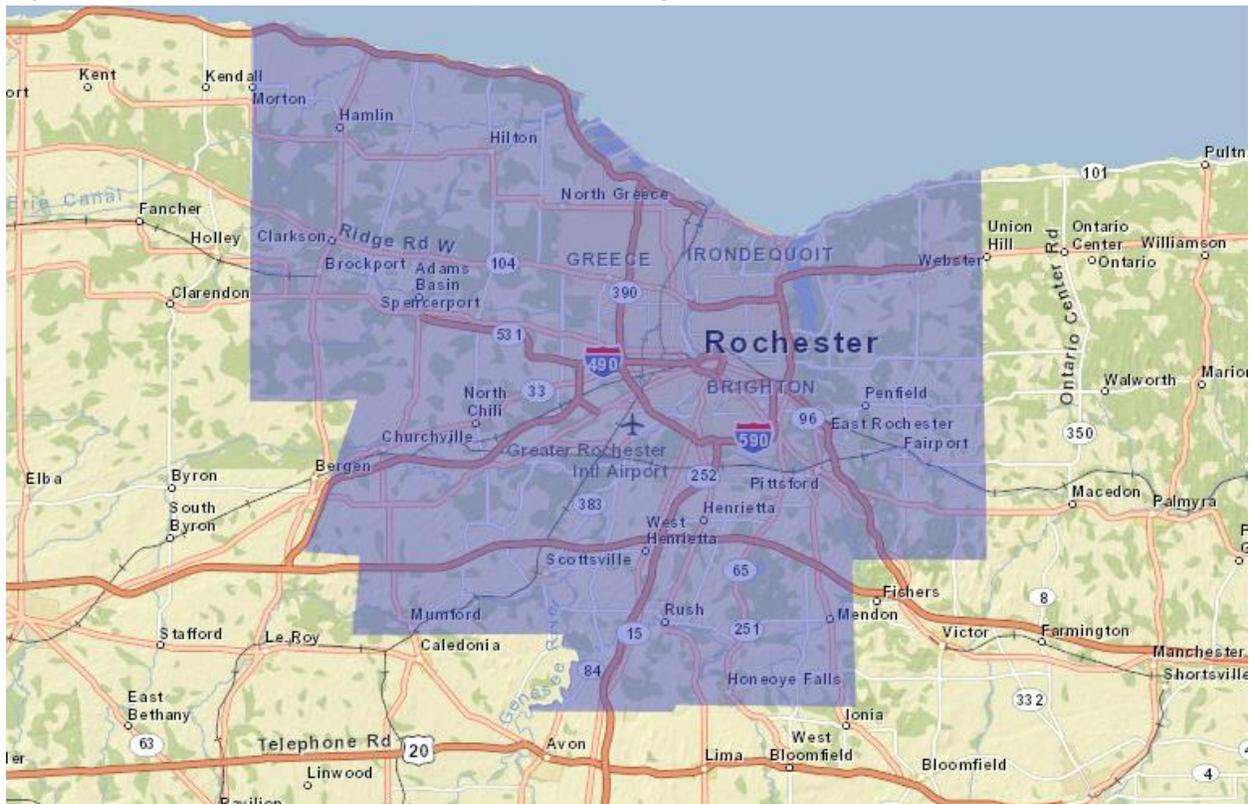
## RESIDENTIAL DEMAND ANALYSIS

### **Demand Projections**

To project potential demand for new residential units within the Inner Loop East study area, HR&A analyzed data from the US Census Bureau, ESRI, and other national data sources. The following methodology provides a quantitative estimate of the potential for average annual absorption within the study area. This analysis considered the following factors:

- **Residential Catchment Area:** HR&A considered a residential catchment area including locations surrounding the study area where workers who may commute to downtown Rochester would consider living if relocating. Households living in or considering moving to this market constitute the market for residential development. HR&A analyzed Monroe County as the catchment area for housing within the Inner Loop, as Downtown Rochester is the only major urban area within the County, and would thus attract residents in the market for a new housing unit with a preference for urban living. HR&A acknowledges that the suburban population has been growing in specific pockets, particularly in the areas southeast of the City towards Victor, NY. However, as detailed below, the residents of those newly developed areas have established a preference for suburban living and thus are not included in the potential catchment rates used to identify residents who would prefer residences in urban settings.

**Figure 34: Residential Catchment Area, Monroe County, NY**



Source: ESRI

- **Required Household Income:** HR&A then established an appropriate income bracket as a baseline income required for market-rate units, and evaluated the total number of households within this range by age of head of household and household income.
  - **Rental:** Based on market rents, and national guidelines for housing expenses in relation to household income, HR&A set income parameters to support new rental product between \$35,000 and \$99,000 in annual household income.
  - **For-Sale:** HR&A estimated an income bracket of \$50,000 to \$149,999 in annual income for for-sale product, based on market home loan terms, accounting for homeowners' ability to make a down payment and sustain mortgage payments.
- **Preference for Rental versus Ownership:** HR&A then applied a factor to determine households' preference for renting or owning their housing unit, calculated by evaluating US Census Bureau data of existing portions of renters and owners in Monroe County.
- **Turnover Rate:** HR&A applied turnover rates for renters and owners to this sample to generate the total residential demand within the study area. Turnover rates were calculated using US Census Bureau data regarding the portion of homeowners or renters who remain in the same place of residence from year to year. For renters, HR&A calculated a 33 % turnover rate, whereas for homeowners, HR&A calculated a 5 % turnover rate.<sup>21</sup>
- **Preference for Urban Neighborhoods:** HR&A then calculated demand for housing units in an urban setting by applying a factor for preference for urban living, grouped by the same age cohorts used to analyze households by income, based on responses to a 2011 survey by the National Association of Realtors.

**Figure 35** on the next page presents a summary of HR&A's analysis. HR&A's analysis resulted in City-wide demand for approximately 1,630 units of rental product and 270 units of for-sale product. However, new product in the Greater Center City area will not capture that entire demand. To evaluate the portion of demand that could potentially be absorbed within Center City, HR&A applied a range of capture rates to model the potential annual absorption of rental and for-sale units that are in demand within Center City (as shown in **Figure 33**). These capture rates create a range of units that will meet demand for new housing product, and reflect existing conditions within the local market, trends in pipeline development and national economic conditions for residential development.

#### **Capture Rates**

- **Historical absorption:** In recent years, absorption of rental product downtown has been very strong. New rental units and units turning over lease again quickly and continue to achieve relatively high rents. For-sale product may be absorbed more slowly, but overall absorption remains high. **Figure 33** of this report displays strong net absorption over the past two years as the City has recovered from the national financial crisis.
- **Young professionals can afford to rent, but not own:** Each of the capture rates models returns a significantly lower number of supportable for-sale units than rental units. HR&A suspects that this is due to the concentration of young professionals moving Downtown, who prefer

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<sup>21</sup> US Census home ownership and rental turnover data, 2010

an urban lifestyle and can afford Downtown rents, but may not have the funds necessary to pay a down payment on a mortgage.

- **National trends in financing new condominiums:** Though the nation is slowly recovering from the 2008 financial crisis and burst of the housing bubble, financing for individual homebuyers, especially in recovering markets, remains difficult. This indirectly affects developers, who are not able to obtain financing under such favorable terms as they may in a better economic climate.
- **Recent development trends:** Recent development trends, with an emphasis on rental units over for-sale homes, support HR&A's evaluation of the development pipeline, and the bullet discussing financing above. Pipeline developments, such as Midtown Tower, which was originally planned as condominiums, and is now being brought to market as rental units, have adjusted to reflect market conditions and demand. For-sale homes under development represent a smaller share of pipeline development, and take the form of smaller projects, such as the five townhomes being developed at Windsor Gate.

**Figure 35: Residential Demand Summary (Capturable Demand for Development at the Project Site)**

Age of Householder	Total Households	Preference for Rental/Ownership		Turnover Rate		Preference for Urban Living	Demand for Downtown Housing	
		Renters	Owners	Renters	Owners		Rental	For-Sale
< 25	15,380	92%	8%	33%	5%	18%	299	1
25-34	45,267	56%	44%	33%	5%	13%	534	29
35-44	49,750	33%	67%	33%	5%	7%	170	36
45-54	62,813	26%	74%	33%	5%	5%	121	41
55-64	57,790	21%	79%	33%	5%	4%	75	29
65-74	35,125	20%	80%	33%	5%	4%	46	12
75+	34,124	31%	69%	33%	5%	4%	53	5
<b>Total</b>	<b>300,249</b>	<b>61%</b>	<b>96%</b>	<b>33%</b>	<b>5%</b>	<b>6%</b>	<b>1,634</b>	<b>268</b>
<i>Capture Rate</i>							<u>10%</u>	
<b>Potential Annual Absorption</b>							<b>130</b>	<b>15</b>
<i>Capture Rate</i>							<u>15%</u>	
<b>Potential Annual Absorption</b>							<b>195</b>	<b>23</b>

Source: US Census Bureau, ESRI, National Association of Realtors

While the strong rental demand reflected here aligns with input received through interviews with local real estate professionals, total demand generated by this analysis is inclusive of new residential product brought to market through both new construction and conversions. Due to the higher costs associated with new construction, the range of affordability would narrow as only new construction can be considered on the newly created parcels within the Inner Loop East study area.

### Pricing Units

With strong demand for rental product, quality new product could likely achieve similar rents to the most desirable units now leasing in loft conversions and new developments downtown. At the top end of the market, studios could achieve over \$875 per month. One bedroom apartments in new construction

developments and renovated lofts fall between \$1,100 and \$1,700. Two bedroom units could achieve rents of \$1,400 to \$1,900, with loft conversions receiving rents on the higher end in the current market.

HR&A used a slightly higher income bracket to calculate supportable prices for for-sale product, adjusting for the necessity to make a down payment and support a mortgage, for-sale product will likely achieve similar prices as current townhome and stacked flat for-sale apartments, starting in the low \$300,000s for smaller two-bedroom loft conversions, and reaching into the high \$400,000s, and potentially up to \$500,000s, for large units within new construction with additional amenities. However, it is important to note that stacked flat apartments listed for prices in the \$500,000s are based on listing prices, and not completed sales, within the newest product in Downtown Rochester, with additional amenities compared to most loft conversions or other new developments.

### ***Factors Affecting Unit Marketability***

- For-sale units are concentrated outside the Inner Loop area and currently geared toward larger units, which may not be as easy to accommodate in stacked flat apartments, suggesting potential for townhouse development for families. However, these units likely fall into a higher price-point than affordable limits for Rochester residents.
- New units under development at buildings such as Midtown Tower and the recently opened Sagamore East include building-wide amenities that may be attractive to potential buyers. While loft apartments have experienced popularity lately, most do not offer a comparable level of amenities to new developments, which may hurt their popularity as new developments come to market.
- Despite the popularity of downtown development and residents' preference to live within the urban core, Rochester remains largely a car culture, and the majority of residents will expect parking to be readily available in new, high-end developments.
- The feasibility of developing various types of multi-family housing, including attached townhouses and stacked flat apartments will be discussed in depth later in this report. This analysis will address specific parcels that could potentially accommodate multi-family housing, if applicable.

Local stakeholders, including public entities such as the RDDC and private developers, are optimistic regarding residential development in Downtown Rochester. Continued low vacancy, dipping to 3.7 % in early 2013, indicates room within the market to provide new residential units in a walkable, urban area. RDDC is also positive about continued population growth in Downtown, projecting an increase in Downtown residents from 5,000 today to 7,500 by 2020. Sustained demand and quick lease absorption support development of new downtown residential projects. Though median incomes in the Greater Center City area remain lower than the surrounding County area, the number of residents within Downtown making over \$100,000 annually has increased 80% from 2000. The presence of high-earning individuals downtown is an encouraging sign for new developments, including amenities, or loft conversions, priced to attract young professionals. HR&A's analysis supports anticipated growth downtown, which will likely be driven by an increasing demand for urban living and access to Rochester's academic and cultural assets, as well as hubs for employment.

## OFFICE OVERVIEW

HR&A's commercial office real estate overview characterizes the Rochester area's existing office market and examines trends that inform development options for the Inner Loop East site. To capture both broad and localized trends, HR&A defined the office market study areas as Monroe County, the City of Rochester, and the Greater Center City area. HR&A based its analysis of office on data provided by CoStar, Loopnet, other third party market reports, and conversations with area real estate stakeholders, and brokers.

### *Inventory*

HR&A examined the Class A, Class B, and flexible office inventory within the defined study areas. Inventory includes both multi-tenant space and owner-occupied, single tenant space. CoStar defines Class A space generally as an extremely desirable investment-grade property with the highest quality construction, abundant amenities and above average rental rates in an excellent location. If it is an older building, it typically has been renovated to maintain its status.<sup>22</sup> Class B space is defined as buildings that offer more utilitarian space that is less appealing to tenants and may be deficient in a number of respects including floor plans, condition and facilities. They therefore attract a wide range of users with average rents. Flexible space is designed to accommodate uses from research and development to light industrial, but it must have at least half of its rental building area designated to office. HR&A considered Class A and Class B as "competitive" space.

In 2012, the Class A and B space in Monroe County was approximately 31 million square feet. Approximately 72% of the County's office market is located in the City of Rochester, which has approximately 22 million square feet of Class A and Class B space. The Greater Center City area had approximately 13 million square feet of Class A and Class B space, which represents approximately 43% of the County's Class A and Class B office inventory.

In Monroe County, Class A office space represented approximately 27% (8 million square feet) of competitive space. The Rochester market was composed of 34% (7.6 million square feet) of Class A and 66% (14.6 million square feet) of Class B space. Competitive office space in the Greater Center City area was evenly split between Class A and B, with roughly 6.6 to 6.7 million square feet of each. **Figure 36** and **Figure 37** present the mix of inventory in these three markets in 2012.

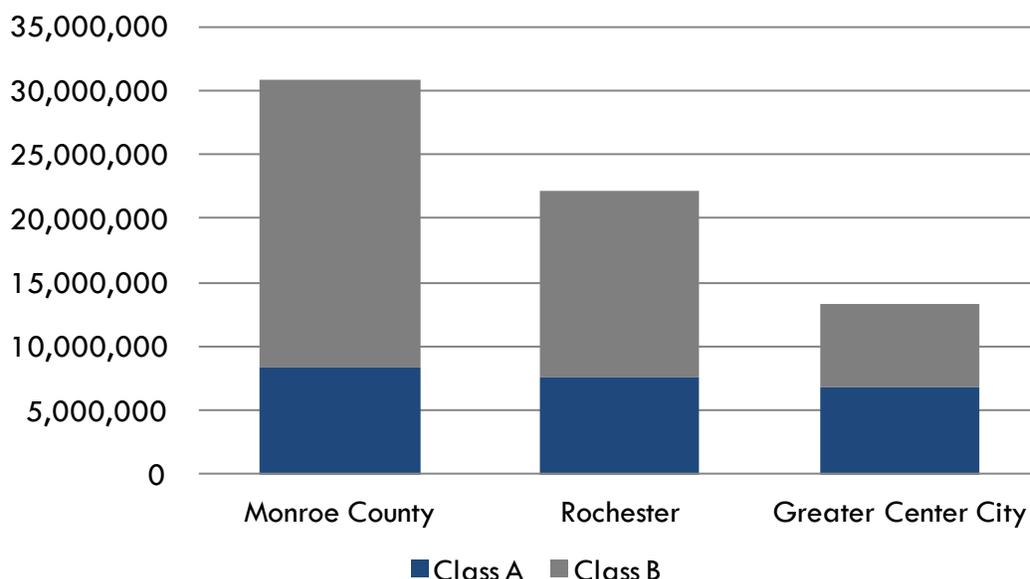
**Figure 36: Class A and Class B Office Inventory, 2012**

Market	Class A	Class B	Total	% of Monroe County
Monroe County	8,310,455	22,519,315	30,829,770	100%
Rochester	7,574,771	14,607,691	22,182,462	72%
Greater Center City	6,729,231	6,597,635	13,326,866	43%

Source: CoStar, HR&A

<sup>22</sup> CoStar Glossary, ([www.costar.com](http://www.costar.com))

**Figure 37: Class A and Class B Office Inventory, 2012**



Source: CoStar, HR&A

Class A inventory has not changed in either Monroe County or the City of Rochester between 2007 and 2012, indicating the lack of activity in the market since the recession. However, in the City there has been an increase of approximately 6% in Class B space from 2007 to 2012. The new Class B space could be from the renovation of older, previously Class C buildings, or conversion of industrial buildings.

Owner-occupied, single tenant space is a small segment of the market. There are three Class A office buildings in the Greater Center City that are owner-occupied: Eastman Kodak with 1.6 million square feet at 343 State Street, Rochester Gas & Electric with 144,600 square feet at 89 East Ave, and ESL Federal Credit Union Building with 150,000 square feet at 225 Chestnut Street. There are also two Class B owner-occupied, single tenant office properties: The Academy Building at 13 S. Fitzhugh St. with 38,000 square feet and Pathfinder Headquarters at 134 S Fitzhugh St. with 9,200 square feet. In total, these properties represent 13% of all Class A and B inventory in the Greater Center City area.

Flexible space in the City of Rochester office market includes 60 properties, which amounts to approximately 8.6 million square feet. Only one of these properties, the Cascade Centre located at 72 Cascade Drive with 130,000 square feet, is located within the Inner Loop. Vacancy rates in these properties are high, at 31%, despite lower rents of +/- \$9 per square foot. These spaces are likely to appeal to smaller companies with less traditional floor layout requirements. These spaces are also typically older, with very limited tenant services provided and thus do not command the rents that Class A and B properties do.

#### **Characterization of Office Space**

The appeal of an office building to a tenant is largely dependent on the floor layouts, the age of the building, surrounding parking, amenities, and other qualitative measures. The City of Rochester faces challenges meeting many of these tenant standards and evolving needs.

The median age of Class A buildings in the City of Rochester is 1975. Of the 32 Class A office buildings in the market, 30% were built before 1970. The other buildings, built after 1970, are located south of the Greater Center City area. Therefore, in the Greater Center City area, approximately 50% of Class A office buildings were built before 1970 and have not been renovated since. Only two of the 23 Class A office buildings in the Greater Center City area were built within the past 20 years.

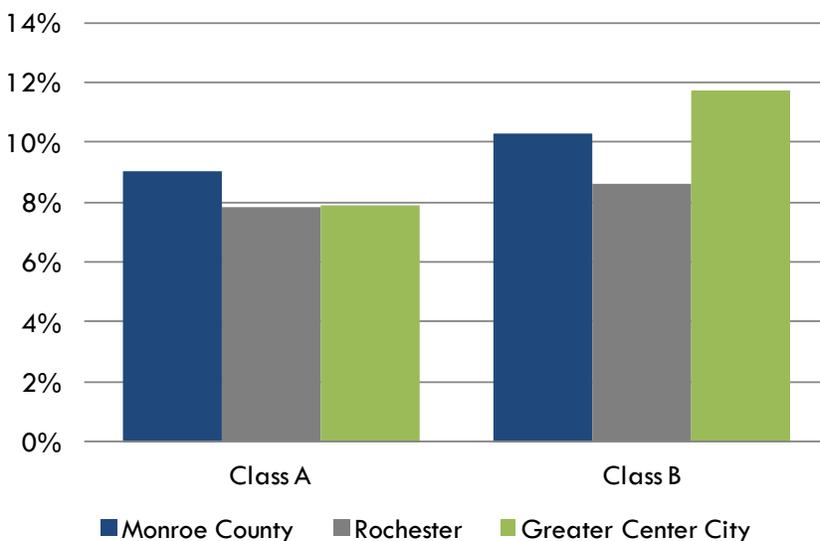
Since many of the buildings were built prior to 1970, the floor layouts are outmoded for a modern economy. As noted by the Wall Street Journal, office space with open floor plans are proving to be more popular and lucrative than traditional Dilbert-like offices both for established companies looking to change their atmospheres and companies hosting the spaces for start-ups. The total vacancy for a “creative” space with open floor plans was 2.54% in San Francisco, with asking rents ranging from \$32 to \$53 per square foot compared with a 10.55% vacancy rate for more traditional spaces with closed-door office layouts and asking rents of \$21 to \$36 per square foot.”<sup>23</sup> New or renovated office space is necessary to compete in the current office market.

A lack of convenient parking and neighborhood amenities also impact the Rochester office market. According to the Rochester Downtown Development Corporation, the majority of workers living in the suburbs drive to work and face poor parking access downtown. This has contributed to the loss of office tenants to regional suburban office product. There is also a shortage of quality restaurants, convenience retail, and daily amenities that support a vibrant working environment.

**Vacancy**

In 2012, the vacancy rate among Class A office space in Monroe County was 9%, higher than in the City of Rochester (8%) and the Greater Center City area (8%). As shown in **Figure 38**, vacancy in Class B buildings is nearly one percentage point higher than in Class A in Monroe County and Rochester, and four percentage points higher in the Greater Center City area.

**Figure 38: Vacancy Rates of Class A and Class B properties, 2012**



Source: CoStar, HR&A

23 “Can’t Afford an Office? Rent a Desk for \$275”, Wall Street Journal, 2011 (<http://online.wsj.com>)

**Figure 39** shows the square footage of vacant Class A and Class B space in each market. As shown, there is very little vacant Class A space within the City of Rochester, but outside of the Greater Center City area, since the majority of Class A space is concentrated in the Greater Center City area.

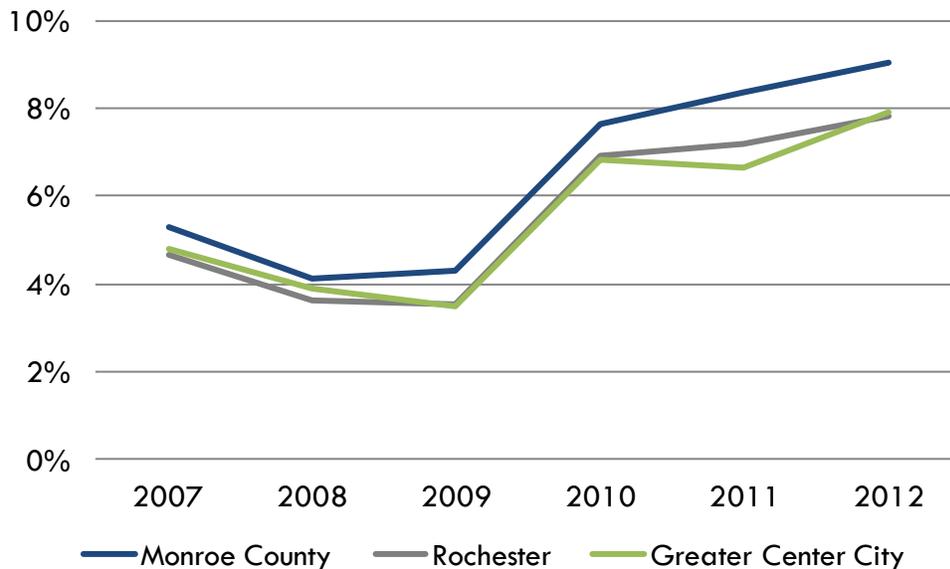
**Figure 39: Square feet of Vacancy among Class A and Class B properties, 2012**

	Class A	Class B
Monroe County	765,573	2,354,357
Rochester	606,625	1,267,535
Greater Center City	533,071	776,126

Source: CoStar, HR&A

The recession impacted real estate availability across the entire region; from 2009 to 2012, the vacancy rate among Class A office increased by more than three percentage points. **Figure 40** shows the changes in vacancy from 2007 to 2012.

**Figure 40: Class A Vacancy 2007 - 2012**

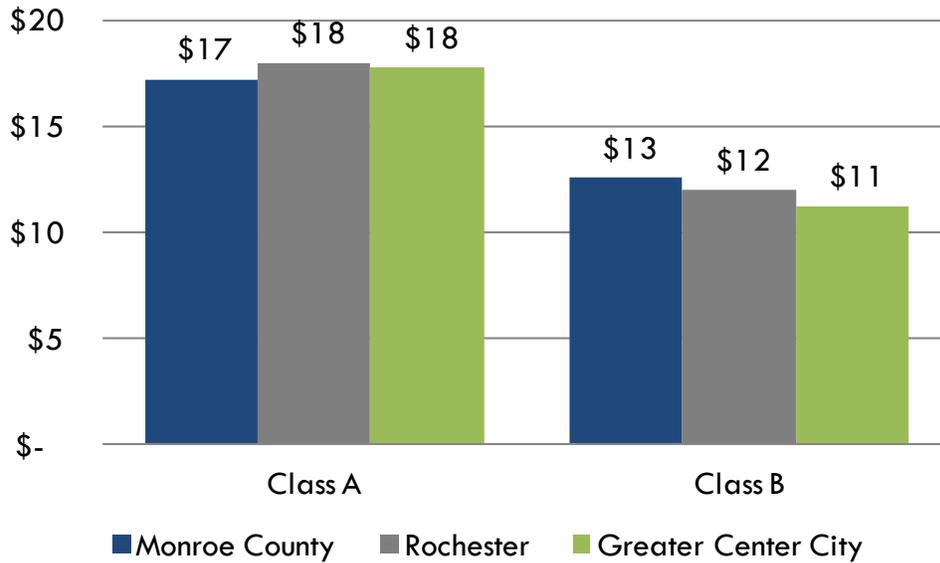


Source: CoStar, HR&A

### Pricing

As shown in **Figure 41**, Class A properties rent at between a 30% to 80% premium over Class B properties in all study areas. In the Greater Center City area, Class A properties demand on average 80% more than Class B properties. However, even the Class A rents are low compared to other downtowns with similar amounts of Class A office inventory. HR&A examined central business districts located in cities east of the Mississippi River that had close to 7 million square feet of Class A office space, which approximates the Greater Center City area. The median rent of Class A office space in the comparable downtown markets is approximately \$21.50 per square foot. Rents in the Greater Center City area fall well below this average rent, at \$17.76, indicating that space is not in high demand.

**Figure 41: Average Rent PSF of Class A and Class B properties, 2012**

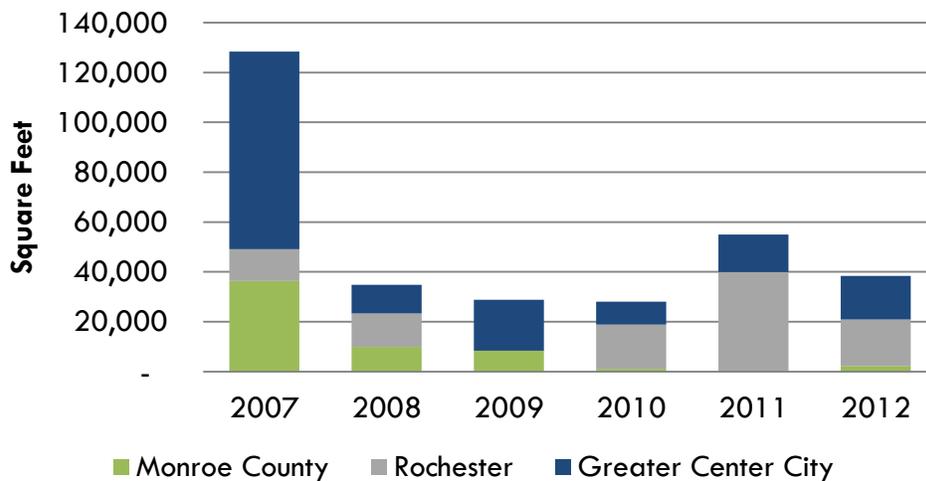


Source: CoStar, HR&A

**Absorption**

Gross absorption measures the total positive change in occupied square footage in a given year. HR&A examined the gross annual absorption of Class A space in the study areas. As shown in **Figure 42**, leasing activity dropped after 2007, but has increased slightly since 2010 within the City and the Greater Center City area. Activity within the County, but outside the City of Rochester has remained stagnant since 2007. In 2012, approximately 18,600 square feet of Class A space was absorbed in the City and 17,500 square feet was absorbed in the Greater Center City area.

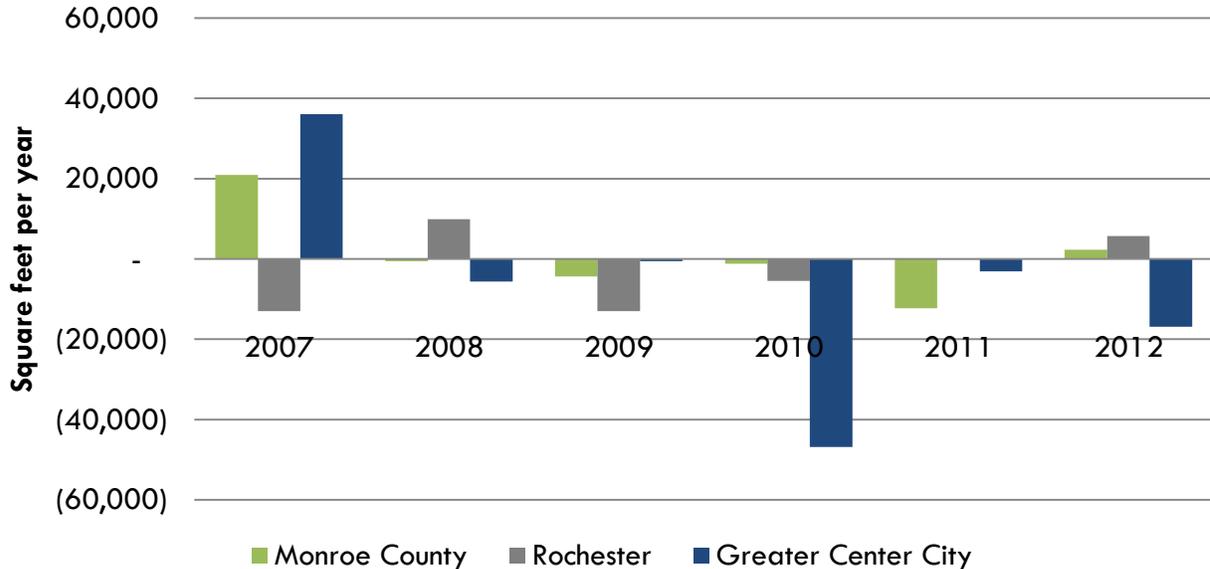
**Figure 42: Gross Absorption, 2007 to 2012**



Source: CoStar, HR&A

Net absorption is the amount of space occupied at the end of a period minus the amount occupied at the beginning of a period. As shown in **Figure 43**, net absorption has been primarily negative since 2010, particularly within the Greater Center City area.

**Figure 43: Net Absorption, 2007 to 2012**



**Transactions**

HR&A examined transactions within the past year among Class A office buildings located in the Greater Center City. Because new development can only be supported with strong rental rates, HR&A considered rental rates among buildings classified at the top of the local market which are located within Class A office buildings. Between March 2012 and March 2013, leases were signed at an average of \$20 per square foot per year.

**Figure 44: Class A Transactions, March 2012 to March 2013**

Address	Removal Date	SF Direct Leased	Rental Rate (\$ PSF)
400 Andrews St	10/22/2012	1,850	Withheld
10 Hagen Dr	9/6/2012	2,000	\$25.00/+u&ch <sup>24</sup>
One Bausch and Lomb Pl	7/23/2012	5,825	\$28.00/nnn
100 Chestnut St	6/20/2012	1,235	\$17.00-\$22.00/fs <sup>25</sup>
255 East Ave	3/14/2013	6,000	\$16.00/+electric
290 Woodcliff Drive	1/10/2013	138,567 <sup>26</sup>	Withheld

<sup>24</sup> Excludes utilities and cleaning.

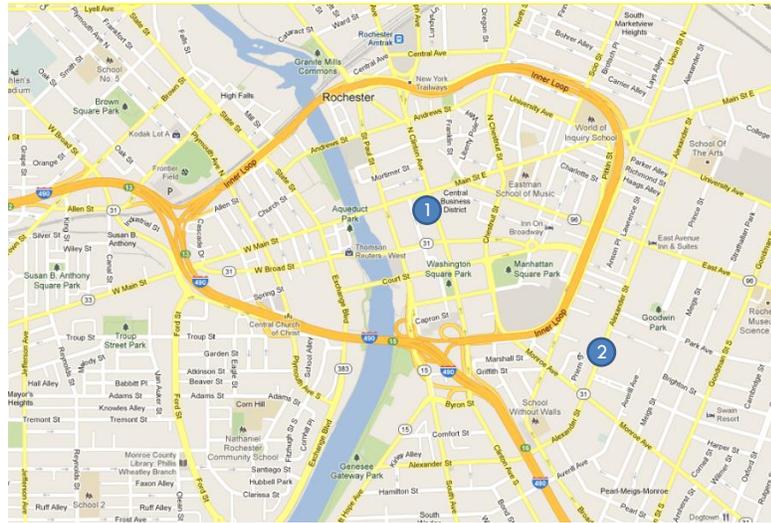
<sup>25</sup> Full service: includes normal building standard services which are provided and paid by the landlord.

As shown in **Figure 44**, recent transactions ranged from \$16 to \$28 per square foot, with One Bausch and Lomb Place capturing the high end of the market. HR&A examined asking rates for properties located in the Greater Center City area and asking rates of approximately \$18 per square foot.<sup>27</sup>

### **Pipeline**

There is limited development in the pipeline. HR&A researched office projects in the development pipeline and found only two within the Greater Center City area. The two projects presented in **Figure 45** are expected to add approximately 200,000 square feet of new Class A office space, although this estimate is highly subject to change.

**Figure 45: Office Developments in the Pipeline**



Source: Google, HR&A

**1. Midtown Rising:** Significant redevelopment efforts are underway at Midtown Plaza in Downtown Rochester. Windstream Corporation is re-locating its headquarters to Midtown Plaza at the covered Seneca Building.. The offices will include approximately 67,000 SF of Class A office space and contain 335 employees. The offices are expected to be completed by July 2013.

Additionally, Buckingham Properties and Morgan Management are redeveloping the 17-story Tower at Midtown into a mixed-use development planned to contain five floors of commercial office space, 182 apartments, and 357,000 square feet of total space. The project is expected to be completed in 2014.<sup>28</sup>

**2. Alexander Park:** Alexander Park is a planned mixed-use development at the former Genesee Hospital site at 218 Alexander Street. The complex will include approximately 110,000 square feet of office space, with additional commercial development of up to 358,000 square feet, retail uses up to 15,000 square feet and up to 200 residential units.<sup>29</sup>

<sup>26</sup> Manning and Napier renewed and expanded their lease at Woodcliff Office Park. 126,254 SF were renewed and 12,313 SF were absorbed in the expansion.

<sup>27</sup> Loopnet.com (7 buildings listed within the Greater Center City area)

<sup>28</sup> The Tower at Midtown website (thetoweratmidtown.com); Conversations with Rochester area brokers .

<sup>29</sup> Loopnet.com (North Campus at Alexander Park)

## OFFICE DEMAND ANALYSIS

### *Methodology*

In order to project demand for new office space, HR&A relied on data provided by the CoStar Group on occupancy and absorption trends in the Greater Center City office market in conjunction with data from the New York State Department of Labor on projected employment trends in office-demanding sectors in the Finger Lakes Region. This analysis projects potential demand for office space in the Greater Center City market in 2020. It does not consider demand from a potential build-to-suit user.

HR&A identified the primary sectors of employment that would require office space in the Greater Center City area. For the selected sectors, HR&A analyzed employment trends and projected growth in the Finger Lakes Region. The Finger Lakes Region includes Genesee, Livingston, Monroe, Ontario, Orleans, Seneca, Wayne, Wyoming, and Yates Counties. Based on the identified employment trends, HR&A estimated future demand for office space based by applying the standard employee space usage of 200 square feet per employee, which resulted in the total demand for office space in the Finger Lakes Region.<sup>30</sup> HR&A estimated the Greater Center City area's share of the new office space based on its existing share.

### *Demand Analysis*

HR&A identified occupations that require office space and could potentially be supported by new space in the Greater Center City area. The selected occupations are presented in **Figure 46**, organized by their Standard Occupational Classification (SOC), a federal system that categorizes occupations. According to conversations with brokers specializing in the Rochester market, a range of industries have been looking to locate in downtown Rochester, including marketing firms, biomedical companies, and legal professionals. Therefore, this analysis considers a wide range of occupations.

HR&A analyzed employment projections for the Finger Lakes region into the year 2020. The projections in **Figure 46** were provided by the New York State Department of Labor Occupational Employment Statistics Survey. In 2010, total employment in the Finger Lakes Region was approximately 612,490. Office-occupying jobs represented 253,450 of these jobs, approximately 41%.

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<sup>30</sup> "The Myth of Shrinking Office Space" Jones Lang LaSalle, 2013 ( <http://www.us.am.joneslanglasalle.com>)

**Figure 46: Employment Projections by Occupation**

SOC Code	Title	Employment		Net Change	Percent Change
		2010	2020		
11-1000	Top Executives	8,450	8,310	-140	-1.7%
11-2000	Advertising, Marketing, Promotions, Public Relations, and Sales Managers	1,670	1,800	130	7.8%
11-3000	Operations Specialties Managers	5,500	5,840	340	6.2%
11-9000	Other Management Occupations	12,340	12,620	280	2.3%
13-1000	Business Operations Specialists	14,170	16,230	2,060	14.5%
13-2000	Financial Specialists	11,050	12,230	1,180	10.7%
15-1000	Computer Specialists	15,170	17,390	2,220	14.6%
15-2000	Mathematical Science Occupations	340	380	40	11.8%
17-1000	Architects, Surveyors, and Cartographers	640	740	100	15.6%
17-2000	Engineers	7,880	7,970	90	1.1%
17-3000	Drafters, Engineering Technicians, and Mapping Technicians	3,760	3,850	90	2.4%
19-3000	Social Scientists and Related Workers	1,610	1,800	190	11.8%
21-1000	Counselors, Social Workers, and Other Community and Social Service Specialists	10,500	12,020	1,520	14.5%
23-1000	Lawyers, Judges, and Related Workers	3,600	3,830	230	6.4%
23-2000	Legal Support Workers	1,680	1,890	210	12.5%
27-1000	Art and Design Workers	4,380	4,610	230	5.3%
27-2000	Entertainers and Performers, Sports and Related Workers	3,590	4,050	460	12.8%
27-3000	Media and Communication Workers	3,920	4,200	280	7.1%
27-4000	Media and Communication Equipment Workers	1,200	1,220	20	1.7%
29-1000	Health Diagnosing and Treating Practitioners	21,620	24,310	2,690	12.4%
29-2000	Health Technologists and Technicians	13,180	15,040	1,860	14.1%
29-9000	Other Healthcare Practitioners and Technical Occupations	430	450	20	4.7%
31-2000	Occupational Therapy and Physical Therapist Assistants and Aides	480	610	130	27.1%
31-9000	Other Healthcare Support Occupations	4,310	4,860	550	12.8%
33-1000	Supervisors of Protective Service Workers	1,420	1,410	-10	-0.7%
33-9000	Other Protective Service Workers	5,330	5,930	600	11.3%
37-1000	Supervisors of Building and Grounds Cleaning and Maintenance Workers	1,320	1,370	50	3.8%
43-1000	Supervisors of Office and Administrative Support Workers	6,280	6,790	510	8.1%
43-2000	Communications Equipment Operators	690	510	-180	-26.1%
43-3000	Financial Clerks	14,570	15,610	1,040	7.1%
43-4000	Information and Record Clerks	21,660	23,040	1,380	6.4%
43-5000	Material Recording, Scheduling, Dispatching, and Distributing Workers	17,310	16,370	-940	-5.4%
43-6000	Secretaries and Administrative Assistants	18,530	19,260	730	3.9%
43-9000	Other Office and Administrative Support Workers	14,870	15,430	560	3.8%
<b>Total</b>		<b>253,450</b>	<b>271,970</b>	<b>18,520</b>	<b>7.3%</b>

Source: New York State Department of Labor, Division of Research and Statistics, Occupational Employment Statistics Survey, 2010; HR&A

Using the industry standard of 200 square foot per office worker, HR&A calculated the increase in office space required to support the additional 18,520 office workers projected by 2020. HR&A projected to the year 2020, not only because the forecasts for employment are through 2020, but also because the Inner Loop East project and noted pipeline developments would reasonably be complete by then. Assuming a constant annual increase of 1,852 employees, HR&A calculated the additional annual demand for office space in the Finger Lakes Region and the total future demand, from 2014 to 2020. HR&A estimates that approximately 2.2 million square feet of office space will be supportable by 2020. **Figure 47** summarizes the demand for office space in the Finger Lakes Region.

**Figure 47: Finger Lakes Region Office Demand**

Annual New Employees	SF per Employee	Annual Demand for Office Space	Demand for Office Space (2014-2020)
1,852	200	370,400	2,222,400

Source: New York State Department of Labor, Division of Research and Statistics, Occupational Employment Statistics Survey, 2010; HR&A

HR&A estimated the share of new office space demand in the Finger Lakes Region that could be captured by the Greater Center City area based on the area's current share of Class A and Class B inventory. The Finger Lakes Region has a total of 32.9 million square feet of Class A and Class B office space. There are currently 13.3 million square feet of Class A and Class B office space in the Greater Center City area, which represents 41% of the Finger Lakes Region office market. **Figure 48** shows the portion of office demand in the Finger Lakes Region that may be captured in the Greater Center City area. HR&A projects that approximately 900,400 square feet of office space can be absorbed by 2020.

**Figure 48: Greater Center City Office Demand**

Demand for Office Space, Finger Lakes Region (2014-2020)	2,222,400
<u>Office Space in Greater Center City as % of Finger Lakes Region</u>	<u>41%</u>
<b>Demand for Office Space, Greater Center City (2014-2020)</b>	<b>900,427</b>

Source: HR&A Analysis

Given the limited amount of proposed office development, HR&A considers the potential that new office development at the Inner Loop East site could capture between 10% and 20% of the projected additional supportable square footage in the Greater Center City area, through the year 2020. **Figure 49** presents the supportable square footage of office space under each scenario. The analysis shows that by 2020, approximately 90,000 square feet of new office development may be supportable on the low end of the range, and 180,000 square feet of development at the high end of the range, which corresponds to 15,000 to 30,000 square feet per year.

**Figure 49: Inner Loop East (Project Site) Supportable Office Square Footage**

Supply Gap in Market	900,427
Capture Rate - Low	10%
<b>Supportable Square Feet - Low</b>	<b>90,043</b>
<b>Annual Supportable Square Feet – Low</b>	<b>15,000</b>
Capture Rate – High	20%
<b>Supportable Square Feet - High</b>	<b>180,086</b>
<b>Annual Supportable Square Feet – High</b>	<b>30,000</b>

Source: HR&A Analysis

To arrive at the 10% and 20% capture rates, HR&A made the following assumptions about the potential for the Inner Loop East area to support new office product:

- By 2020, development projects currently in the planning and construction pipeline in the Greater Center City area will likely be complete, introducing approximately 200,000 square feet of office space to the market. These projects will absorb some of the projected demand, thereby reducing the percentage captured by office development at the Inner Loop East.
- HR&A estimates that approximately half of the 533,000 square feet of existing vacant Class A office space in the Greater Center City area will be absorbed through releasing. HR&A's capture rates reflect the probability that a portion of the demand will be absorbed by existing office stock but that another segment of the demand pool will be attracted to new, more customizable space.
- HR&A also considered the attractiveness of the Inner Loop East as an office destination compared to other sections of the Greater Center City area. The east side is already considered a vibrant section of the broader downtown area, and new office product will likely appeal to a variety of tenants, particularly those willing to pay a premium for development in a new, walkable neighborhood.

### **Conclusions**

- The office market is characterized by an old, and comparatively outmoded, Class A office stock that is priced below Class A buildings in similarly-sized markets. There has been relatively low office market demand and activity over the past five years. This is particularly true in Greater Center City, where metrics point to relatively high vacancy rates, low achievable price per square foot, and steady gross absorption of existing stock.
- Despite low demand over the recent past, there will be future demand for space generated by the shift and increase in area employment. The demand analysis shows that approximately 90,000 square feet of new office development may be supportable on the low end, and 180,000 square feet of development at the high end for the Inner Loop East Reconstruction Project.. The largest growing employment sector is healthcare and health related industries. This group represents new demand for office space from increased employment of approximately 25,000 to

50,000 square feet in the Greater Center City area by 2020.<sup>31</sup> Additional employment sectors that will generate demand for commercial offices space include traditional service industry employees in business management, marketing firms, and law firms.

- While existing stock of office space is slow to be absorbed, newer product that is brought on to the market is more quickly absorbed, especially when there is a primary tenant as in the case of the Earthlink headquarters on Alexander Street. According to the Rochester Downtown Development Corporation, “the significant net new office users have opted for new construction alternatives in center city locations over occupying existing spaces.”<sup>32</sup> Because of these preferences, new space will likely be absorbed more quickly than the 500,000 square feet of existing vacant Class A office space in the Greater Center City area.
- The growth of the technology sector will also demonstrate additional demand for office space firms that are looking for new locations. According to the Greater Rochester Enterprise, startups located with the Greater Center City area tend to prefer incubator space because of the low rents and flexibility; however, as these startups graduate from the incubators, they will likely move into the existing vacant Class A space rather than the new office construction. Existing office space will require investment to create the more modernized space and open floor layouts preferred by startups.
- Commercial office in Greater Center City is at a competitive disadvantage to regional suburban office product because of the lack of convenient and secure parking in downtown and the relative ease of commuting to suburban office locations. HR&A learned from downtown stakeholders that there is an adequate quantity of parking spaces in the broader downtown area but that many of those spaces are in inconvenient locations and thus not attractive to potential tenants. Additionally, commercial office tenants in Greater Center City are burdened by the cost of parking while suburban office space typically provides free parking for tenants. For new development in downtown to be able to attract a tenant base it will need to provide convenient, secure and low-cost parking options. However, as long term physical interventions make Downtown Rochester more amenable to pedestrians, bicyclists, and public transportation – and as Americans increasingly favor alternative transportation modes over driving<sup>33</sup> – the emphasis placed on parking availability may lessen over time, thereby reducing market-driven parking requirements for future development projects.

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<sup>31</sup> Office demand in the Greater Center City from the healthcare sector is calculated using the same standard of 200 square feet per employee and 41% of Finger Lakes growth.

<sup>32</sup> “Survey of Downtown Office Space”, Rochester Downtown Development Corporation, 2012 (<http://www.rochesterdowntown.com>)

<sup>33</sup> *Transportation and the New Generation: Why Young People are Driving Less and What it Means for Transportation Policy*, Frontier Group and U.S. PIRG Education Fund, April 2012.

## RETAIL OVERVIEW

For the retail analysis, HR&A utilized a set of accepted industry sources and methodologies to calculate area retail supply and demand, and assess the potential for future retail uses within Downtown Rochester. Specifically, HR&A utilized the following methods:

**Trade Areas:** Standard retail market analysis begins with defining Trade Areas: geographic areas from which a business or center of retail draws most of its customers. Trade Areas can be defined by set geographic areas (zip codes, municipalities, counties, etc.), drive-time areas, rings, or custom polygons that are influenced by natural or man-made borders and geographic features. Because of a strong driving culture in Rochester, the relative abundance of area highways, and the distribution of shopping centers within Monroe County, distance rings provided an appropriate measure of trade areas. To this end, HR&A defined the Primary Trade Area as the **1-mile ring** from the intersection of the Inner Loop and East Avenue and the Secondary Trade Area as the area within a **5-mile ring** of the same location.

**Existing Retail Sales (Supply):** HR&A utilized proprietary retail sales figures from ERSI's Business Analyst Online (ESRI) to identify existing retail sales for all of the defined Trade Areas. ESRI, a third-party data provider, provides sales data for defined geographies based on the North American Industry Classification System (NAICS) retail industry categories.

**Retail Demand:** HR&A utilized ESRI data to identify the total demand for retail goods in the defined Trade Areas. ESRI's demand estimates are based on the US Census' Consumer Expenditure Survey, which identifies annual household expenditures on goods and services for a set of NAICS retail industry categories and ESRI's proprietary Tapestry Segmentation system which adjusts demand calculations based on the demographic profiles of area residents.

**Capture Rates:** Capture rates are the percentage of total potential spending in any retail category that could reasonably be expected to occur at a given location based on competitive venues, proximity to customer base, drive-time, and quality of venue. HR&A estimated capturable sales and supportable square feet of retail space by applying a range of conservative capture rates to the gap between existing supply and estimated demand from residents within the defined Trade Areas to determine capturable sales.

As part of this process, HR&A analyzed the retail offerings in the Trade Areas to identify retail uses that are under-represented or missing from the market. Higher capture rates were assigned to those categories that are underserved, assuming that if those goods and services were available in the study area, they would receive greater market support.

**Sales Per Square Foot:** HR&A translated capturable sales into supportable square footage estimates based on industry averages of sales per square foot for a set of use categories.

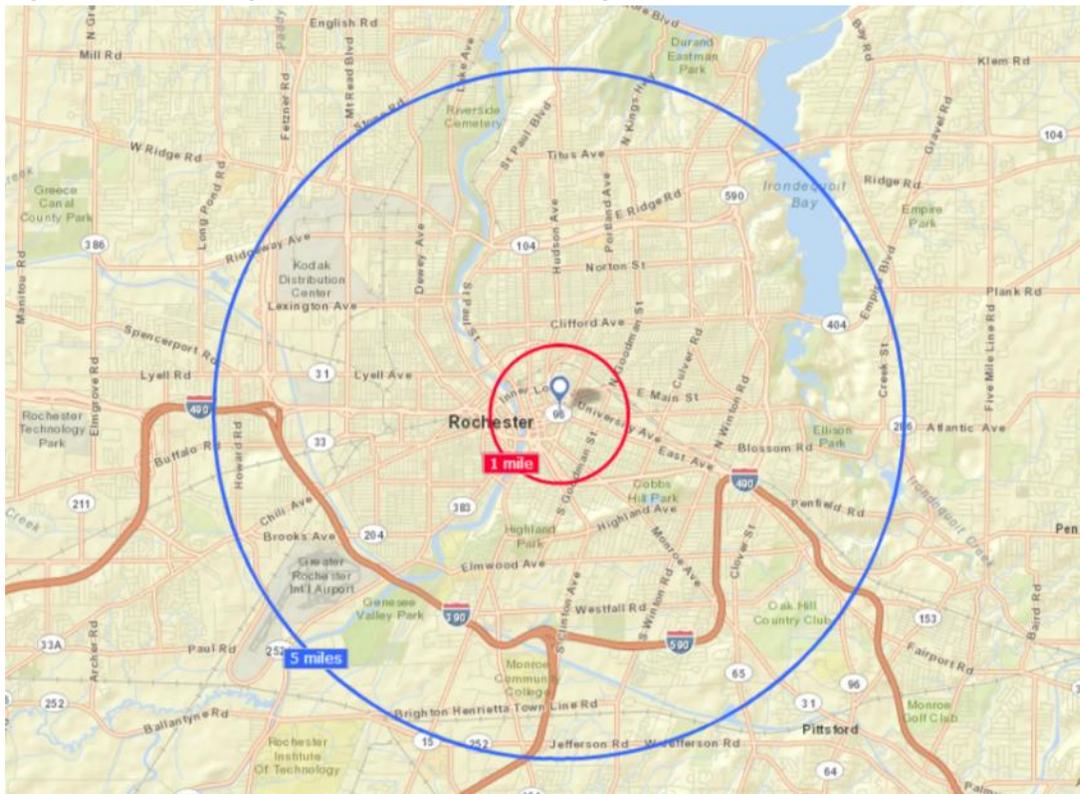
### **Existing Conditions**

HR&A analyzed retail real estate within a one-mile radius (convenience trade area) and five-mile radius (comparison trade area) from the intersection of the Inner Loop and East Avenue. The International Council

of Shopping Centers (ICSC) defines convenience retailers as those that sell essential goods (goods that consumers purchase regularly), such as grocery stores, drugstores, or pet supplies, while comparison goods are those that may be purchased less frequently such as luxury goods, electronics, and home furnishings.

HR&A analysis also considered regional shopping centers over 50,000 square feet (sf) within Monroe County, as this entire area will draw comparison shoppers from Downtown Rochester, making those shopping centers part of the area's competitive set, and potential competition to retail development that may locate in or around Downtown. HR&A then analyzed the current retail supply in the Rochester retail area to gauge potential for urban retail within the Inner Loop and opportunities for new retail within one mile of the intersection of the Inner Loop and East Avenue.

**Figure 50: Inner Loop East Convenience and Comparison Goods Trade Areas**



Source: ESRI

Retail development in Rochester is primarily in a suburban, auto-based format, concentrated in shopping centers outside Downtown Rochester. Within Monroe County, there are over 40 shopping centers, ranging from large shopping centers, to mid-sized shopping centers, to strip retail. ICSC defines shopping malls by the following classifications based on size:

- Neighborhood centers, between 30,000 and 150,000 sf, also known as convenience centers
- Community centers, between 100,000 and 350,000 sf
- Regional centers, between 400,000 and 800,000 sf

- Super-regional centers, over 800,000 sf
- Power centers, between 250,000 and 600,000 sf, almost exclusively tenanted by big-box retailers
- ICSC also defines parameters for specialty or themed shopping centers, not included here.

The area is home to three active shopping centers over 500,000 square feet (for the purposes of this analysis, HR&A disregards the largely vacant Medley Center), including the Mall at Greece Ridge, the Marketplace located in Rochester, and Southtown Plaza in Henrietta. Just outside the county line is Eastview Mall, a large regional power center, which likely also attracts comparison shoppers from Rochester, as it is the most concentrated center for high-end retailers in the area. Despite the proximity of these shopping centers, anchor overlap is fairly common. Each of these shopping centers includes a JCPenney, Macy's, and Sears. Bon-Ton stores were recently demolished at both the Mall at Greece Ridge and Eastview Mall, to be replaced with a Von Maur department store at Eastview and undetermined redevelopment at the Mall at Greece Ridge. Removals of Bon-Ton may also be the cause for high vacancy at Greece Ridge, reaching 12 %, while vacancy across comparison goods within the whole County is only 5%.

**Figure 51: Local Shopping Centers over 500,000 SF**

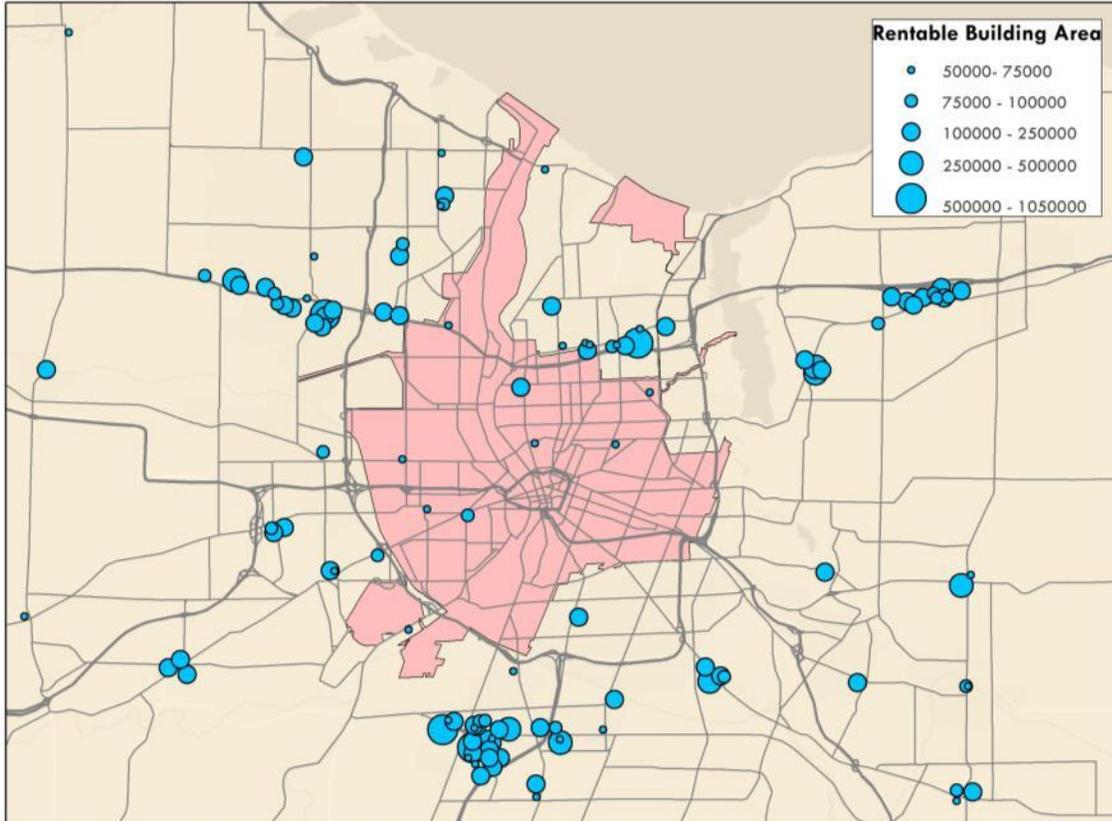


Source: ESRI, CoStar

Retail offerings within downtown are sparse, and stakeholder input indicates that residents do not feel that there is a broad enough selection of restaurants or entertainment-based retail in downtown. HR&A analyzed recent transactions in this area to identify the most typical lease types and average rental rates. The average rental rate for recent transactions within the study area is \$13 per square foot per year on a

triple net basis.<sup>34</sup> Spaces for rent ranged from 500 square feet to 3,000 square feet. Though established retail downtown does not present a cohesive vision of a vibrant urban area, restaurants and bars are making an in-road Downtown. However, retail within the Inner Loop remains disconnected from the restaurants and shops that populate Park Avenue and other neighborhood commercial streets, stretching from residential neighborhoods toward the Center City area.

**Figure 52: Monroe County Shopping Centers by SF**



**Pipeline Development**

Recently developed and planned retail space will help to fill the gaps between residential neighborhoods and the central business district. Ground floor retail space is available in recent residential developments in downtown Rochester, including The Sagamore on East, H.H. Warner Building, and Sibley Building, and some spaces have been filled by restaurants, providing tenants with new dining options and create a more active resident experience. Additional space is anticipated to come online with the opening of the Midtown Tower, and future development at the Alexander Park site. Area professionals see a strong correlation between these new residential buildings and potential for ground floor, and potentially second floor, retail as the next step in downtown’s revitalization. Market intelligence and HR&A’s analysis, as detailed below, suggest demand for a well-located downtown grocery store and entertainment-focused retail. However, end users for retail in new developments such as the Midtown Tower and Alexander Park have not yet been identified.

<sup>34</sup> In a “triple net” lease, the tenant pays costs for maintenance, property taxes, and insurance over and above the total psf rent amount, generally based on a pro-rata share according to the total area of space leased.

## RETAIL DEMAND ANALYSIS

HR&A assessed demand for new retail space in the Inner Loop East area by quantifying spending potential in the vicinity. For the purposes of this study, HR&A considered spending potential for the three following groups:

- Households within one mile of the Inner Loop East study area (set as a point at the intersection of East Avenue and the Inner Loop): **12,779 households**
- Office workers employed within one mile of the site: **45,067 workers**<sup>35</sup>
- Visitors to Downtown Rochester each year: **316,800 visitors**<sup>36</sup>

When the spending potential of these groups exceeds current sales, there may be an opportunity to develop new retail space in the study area. Retail development planning will also depend on an appropriate tenancing strategy, site design, and ability to meet parking requirements for specific retail types.

HR&A assessed retail potential for each retail store type by categorizing stores into either convenience or comparison retail categories. For convenience retail, such as grocery and drugstores, analysis considers households within a one mile ring of the Inner Loop East study area, workers employed within one mile of the site, and all visitors to Downtown Rochester. For comparison retail, such as home furnishing and clothing stores, HR&A also considered spending from residents within a larger, five-mile area.

### ***Spending Potential***

For area households, HR&A used data from ESRI, a national data provider, to identify total potential household spending within a one and five-mile radius of the Inner Loop East study area.

To quantify employee spending in Downtown, HR&A used average worker spending data according to a 2008 ICSC study on worker spending. HR&A adjusted spending reported for workers in an urban area for local wages and reduced the share of comparison goods that workers spend on in Downtown, as competition for comparison goods within the retail analysis area is so high.

To quantify visitor spending in Downtown Rochester, HR&A estimated the portion of Monroe County overnight visitors who stay in Downtown Rochester hotels, and applied this portion to total Monroe County Visitor spending on retail and food and beverage categories.<sup>37</sup>

HR&A then applied specific capture rates for each consumer group. Capture rates estimate the anticipated percentage of total retail demand that can be captured within the study area, based on local demographics, behavioral influences, and competitive supply nearby. In this case, HR&A based capture rates primarily on accessibility of retail and the opportunity to provide compelling retail options for each group within the Inner Loop. HR&A assumed a 30 % capture rate for convenience goods for residents

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<sup>35</sup> HR&A used national Bureau of Labor Statistics data to identify the number of employees within the trade areas. Of 46,595 employees in the study area, 1,528 who live within the study area were removed from this portion of the analysis to prevent double-counting.

<sup>36</sup> Per phone conversation with VisitRochester! Vice President and Director of Marketing, Greg Marshall, and HR&A analysis.

<sup>37</sup> It should be noted that this is a conservative methodology in that it only includes overnight visitors, and excludes spending potential owing to day-trippers visiting Downtown Rochester. Day-trippers to Downtown attractions such as the Eastman Theatre, Strong Museum, Blue Cross Arena, and the City's numerous festivals also contribute to retail demand in Downtown Rochester, but specific data on day trips to Downtown Rochester is not readily available.

within a one-mile area, and a 15 % capture rate for comparison goods for residents within a five-mile area, given highly competitive local shopping centers. For employees within a one mile area, HR&A assumed a 50 % capture rate for convenience goods, and 25 % capture rate for comparison goods, which workers are less likely to purchase near their place of work. For visitors to Downtown Rochester, HR&A applied at 50 % capture rate for convenience goods and a 20 % capture rate for comparison goods, other than clothing, sporting goods, and spending in hobby stores, which regional tourism professional input suggested may be higher (HR&A assumed 30 %) due to visitors from just over the Canadian border.

HR&A then compared retail spending potential against current sales, provided by ESRI, for each retail category. **Figure 53** on the following pages includes a summary of the spending potential for each consumer group in each retail type analyzed.

**Figure 53: Retail Spending Potential**

Retail Category	Residents within 1 mile <sup>38</sup>	Residents within 5 miles <sup>39</sup>	Workers	Visitors	Total
<b>Convenience Retail</b>					
General Merchandise					
Overall Spending Potential	\$16,201,000	-	\$22,894,000	\$5,570,000	
<u>Capture Rate</u>	<u>30%</u>	<u>n/a</u>	<u>50%</u>	<u>50%</u>	
Capturable Spending	\$4,860,300	-	\$11,447,000	\$2,785,000	<b>\$19,092,300</b>
Health & Personal Care					
Overall Spending Potential	\$8,687,000	-	\$28,396,000	\$7,427,000	
<u>Capture Rate</u>	<u>30%</u>	<u>n/a</u>	<u>50%</u>	<u>50%</u>	
Capturable Spending	\$2,606,100	-	\$14,198,000	\$3,713,500	<b>\$20,517,600</b>
Limited-Service Eating Places					
Overall Spending Potential	\$14,237,000	-	\$26,139,000	\$11,704,000	
<u>Capture Rate</u>	<u>30%</u>	<u>n/a</u>	<u>50%</u>	<u>50%</u>	
Capturable Spending	\$4,271,100	-	\$13,069,500	\$5,852,000	<b>\$23,192,600</b>
Grocery					
Overall Spending Potential	\$41,381,000	-	\$29,905,000	\$2,809,000	
<u>Capture Rate</u>	<u>30%</u>	<u>n/a</u>	<u>50%</u>	<u>50%</u>	
Capturable Spending	\$12,414,300	-	\$14,952,500	\$1,404,500	<b>\$28,771,300</b>
Miscellaneous					
Overall Spending Potential	\$3,120,000	-	\$6,524,000	\$7,427,000	
<u>Capture Rate</u>	<u>30%</u>	<u>n/a</u>	<u>50%</u>	<u>50%</u>	
Capturable Spending	\$936,000	-	\$3,262,000	\$3,713,500	<b>\$7,911,500</b>
Drinking Places					
Overall Spending Potential	\$725,000	-	\$4,104,000	\$7,022,000	
<u>Capture Rate</u>	<u>30%</u>	<u>n/a</u>	<u>50%</u>	<u>50%</u>	
Capturable Spending	\$217,500	-	\$2,052,000	\$3,511,000	<b>\$5,780,500</b>
Full-Service Restaurants					
Overall Spending Potential	\$14,019,000	-	\$20,519,000	\$23,408,000	
<u>Capture Rate</u>	<u>30%</u>	<u>n/a</u>	<u>50%</u>	<u>50%</u>	
Capturable Spending	\$4,205,700	-	\$10,259,500	\$11,704,000	<b>\$26,169,200</b>
Beer, Wine & Liquor Stores					
Overall Spending Potential	\$2,483,000	-	\$1,625,000	\$468,000	
<u>Capture Rate</u>	<u>30%</u>	<u>n/a</u>	<u>50%</u>	<u>50%</u>	
Capturable Spending	\$744,900	-	\$812,500	\$234,000	<b>\$1,791,400</b>
Specialty Food					
Overall Spending Potential	\$970,000	-	\$975,000	\$468,000	
<u>Capture Rate</u>	<u>30%</u>	<u>n/a</u>	<u>50%</u>	<u>50%</u>	
Capturable Spending	\$291,000	-	\$487,500	\$234,000	<b>\$1,012,500</b>

38 For convenience retail, HR&A considers spending within a one-mile trade area, and does not consider spending within the five-mile area.

39 For comparison retail, HR&A considers spending within a five-mile trade area, inclusive of the one-mile convenience trade area.

Retail Category	Residents within 1 mile <sup>40</sup>	Residents within 5 miles <sup>41</sup>	Workers	Visitors	Total
<b>Comparison Retail</b>					
Bldg Materials, Garden Equip. & Supply					
Overall Spending Potential	-	\$76,351,000	\$1,105,000	\$0	
<u>Capture Rate</u>	<u>n/a</u>	<u>15%</u>	<u>25%</u>	<u>20%</u>	
Capturable Spending	-	\$11,452,650	\$276,250	\$0	<b>\$11,728,900</b>
Clothing & Clothing Accessories Stores					
Overall Spending Potential	-	\$107,514,000	\$14,646,000	\$9,284,000	
<u>Capture Rate</u>	<u>n/a</u>	<u>15%</u>	<u>25%</u>	<u>30%</u>	
Capturable Spending	-	\$16,127,100	\$3,661,500	\$2,785,200	<b>\$22,573,800</b>
Electronics & Appliance Stores					
Overall Spending Potential	-	\$72,647,000	\$2,471,000	\$3,714,000	
<u>Capture Rate</u>	<u>n/a</u>	<u>15%</u>	<u>25%</u>	<u>20%</u>	
Capturable Spending	-	\$10,897,050	\$617,750	\$742,800	<b>\$12,257,600</b>
Furniture & Home Furnishings					
Overall Spending Potential	-	\$64,627,000	\$904,000	\$0	
<u>Capture Rate</u>	<u>n/a</u>	<u>15%</u>	<u>25%</u>	<u>20%</u>	
Capturable Spending	-	\$9,694,050	\$226,000	\$0	<b>\$9,920,050</b>
Special Food Services					
Overall Spending Potential	-	\$38,308,000	\$2,736,000	\$936,000	
<u>Capture Rate</u>	<u>n/a</u>	<u>15%</u>	<u>25%</u>	<u>20%</u>	
Capturable Spending	-	\$5,746,200	\$684,000	\$187,200	<b>\$6,617,400</b>
Sporting, Hobby & Books					
Overall Spending Potential	-	\$23,938,000	\$3,295,000	\$3,714,000	
<u>Capture Rate</u>	<u>n/a</u>	<u>15%</u>	<u>25%</u>	<u>30%</u>	
Capturable Spending	-	\$3,590,700	\$823,750	\$1,114,200	<b>\$5,528,650</b>

Source: ESRI, BLS, VisitRochester, HR&A Analysis

### **Unmet Spending Potential**

In order to identify the total amount of untapped spending potential that could support new retail development in the Inner Loop East area, HR&A assessed spending potential net of current sales. For convenience goods, HR&A considered current retail sales within a one mile radius of the intersection of the Inner Loop and East Avenue, and for comparison goods, considered a five mile radius.

Based on existing sales data, HR&A created **Figure 54** below to present unmet spending potential in the study area. Retail sectors in which existing sales were greater than capturable spending were excluded from the figure below.

<sup>40</sup> Ibid.

<sup>41</sup> Ibid.

**Figure 54: Unmet Spending Potential**

Retail Category	Capturable Spending	Existing Sales	Unmet Spending Potential
General Merchandise	\$ 19,092,300	\$ 5,159,000	\$ 13,933,000
Health & Personal Care	\$ 20,517,600	\$ 7,995,000	\$ 12,522,000
Limited-Service Eating	\$ 23,192,600	\$ 12,096,000	\$ 11,097,000
Grocery	\$ 28,771,300	\$ 18,830,000	\$ 9,941,000
Drinking Places	\$ 5,780,500	\$ 5,497,000	\$ 284,000

Source: ESRI, BLS, ULI, HR&A Analysis

### Supportable Retail Development

In order to translate unmet spending potential into supportable square footage for development, HR&A applied national averages for projected sales per square foot of retail space by retail category.<sup>42</sup> As illustrated in **Figure 55** below, HR&A identified a total unmet spending potential of \$398 million, concentrated most heavily in grocery stores, general merchandise stores, clothing and clothing accessories stores and dining or food-service establishments. HR&A based this supportable square analysis on the current spending patterns of existing residents, workers and visitors. New development at the Project site will attract new residents and workers who will bring with them spending potential that will further increase the support for additional retail space. Conversely, the analysis does not take into account future retail development that could occur at nearby developments sites. Those not-yet-announced projects could attract additional outside spending or could compete for local spending and thus reduce the total supportable square footage at the Project site. However, there has not been discussion publicly or otherwise of a project that would provide enough square footage to have a significant impact on HR&A's projected supportable square footage at the Project site.

**Figure 55: Supportable Square Feet of Retail Development at the Project Site**

Retail Category	Unmet Spending Potential	Supportable Square Feet
General Merchandise	\$ 13,933,000	56,000
Health & Personal Care	\$ 12,522,000	50,000
Limited-Service Eating	\$ 11,097,000	32,000
Grocery	\$ 9,941,000	28,000
Drinking Places	\$ 284,000	1,000
<b>Total</b>	<b>\$ 47,777,000</b>	<b>167,000</b>

Source: ESRI, International Council of Shopping Centers, ULI, HR&A Analysis

### Retail Development Potential

Based on HR&A's analysis of sales per square foot averages for each type of retailer, downtown Rochester could support approximately 170,000 square feet of retail development. Concentrating retail in the area highlighted above fulfills both market demand and aligns with stakeholder input and developer plans for future development. As urban residential product expands, demand for convenience and

<sup>42</sup> HR&A translated capturable sales into supportable square footage estimates based on industry averages of sales per square foot for a set of use categories. For Food and Beverage and grocery retail HR&A used a conservative figure of \$350 per square foot. For non-food-based retail, HR&A used a conservative rate of \$250 per square foot.

entertainment-based retail is likely to increase along with an influx of urban residents. Similarly, visitors and employees would support expanded food service and entertainment options for downtown.

### **Recommendations**

HR&A's analysis of spending patterns and unmet spending potential indicated that the following store types have the greatest market support within the study area:

- **General Merchandise Stores:** The study area could support up to 56,000 square feet of general merchandise retail development. However, this type of retail, such as a department store, may not align with the available parcel sizes in the study area. Feasibility, considering both developable area and parking requirements, will be considered later in this report.
- **Grocery Store:** HR&A estimated that up to 28,000 square feet of grocery retail could be supported in downtown. A small grocer like this could potentially stock a high-quality supply of essentials and emphasize prepared foods, for workers and urban residents. This recommendation closely aligns with stakeholder input gathered throughout this analysis.
- **Limited-Service Eating Places and Drinking Places:** HR&A analysis suggested that up to 32,000 square feet of limited-service eating place could be supported within the study area. This result emphasizes the demand (and likely continued demand) for food service in downtown to serve the growing number of residents, employees, and visitors who frequent downtown establishments. Small demand of 1,000 square feet for drinking places also supports the demand for casual places for residents to socialize.
- **Health and Personal Care Stores:** HR&A estimates that the study area could support up to 50,000 square feet of health and personal care retail, such as a pharmacy or drugstore. This sort of convenience retail aligns with stakeholder input and would serve local residents, as well as employees, where demand was concentrated. Demand for this type of retail also aligns with the dearth of supply currently located in Downtown.

In order to draw patrons from East Avenue and other popular retail corridors into the Inner Loop, retail should be appropriately mixed between convenience goods, such as drugstores, and food and beverage/entertainment retail, such as limited-service eating establishments. Variety should also be maintained between regional or national chains and local establishments, as this will support the emerging character of the area between the East Avenue shopping and eating corridor and the Midtown neighborhood.

Retailer sizes will also be influenced by the availability of space for surface parking. Retailers such as grocers and restaurants require a higher parking to retail space ratio than other retailers, constraining the feasibility of developing such spaces on available parcels. The feasibility of development on parcels within the Inner Loop East study area later is addressed later in this report.

According to local real estate professionals, strengthening this corridor is essential to connecting downtown to more vibrant parts of the City. Appropriate retail development and tenanting, and associated street life, is a key part of the growth of this neighborhood and transformation of Downtown Rochester through the re-grading of the Inner Loop.

## HOTEL OVERVIEW

HR&A's real estate market analysis concludes with an assessment of the hotel market. To determine the potential for a new hotel development at the Inner Loop East site, HR&A analyzed the hotel market in Monroe County and the Greater Center City area. HR&A analyzed hotel data provided by Smith Travel Research (STR) for these two geographies. STR is a research company that tracks supply and demand data for the hotel industry. HR&A also spoke with representatives from Visit Rochester, also known as the Greater Rochester Visitors Association, Inc., which is the City's primary visitors' bureau.

### Room Night Supply

Hotel supply is defined as the number of room nights available in the market, calculated by multiplying the total number of hotel rooms by 365 days. There are 67 hotels in Monroe County, amounting to 7,181 rooms (~2.5 million room nights). Supply has grown by 1.2% annually from 2007 to 2012, (6% overall). There are 44 hotels located in Rochester, 76% of total hotels in Monroe County, and in the Greater Center City area, there are six hotels, with a total of 1,396 rooms. This represents a maximum of 543,485 room nights. The Greater Center City area's supply has decreased by 127,386 room nights from 2007 to 2012. This rate amounts to a decrease of 5% overall, and 1% per year. **Figure 56** summarizes the changes in hotel supply from 2007 to 2012. As shown, Downtown Rochester supply has noticeably decreased, while the supply in the County has grown.

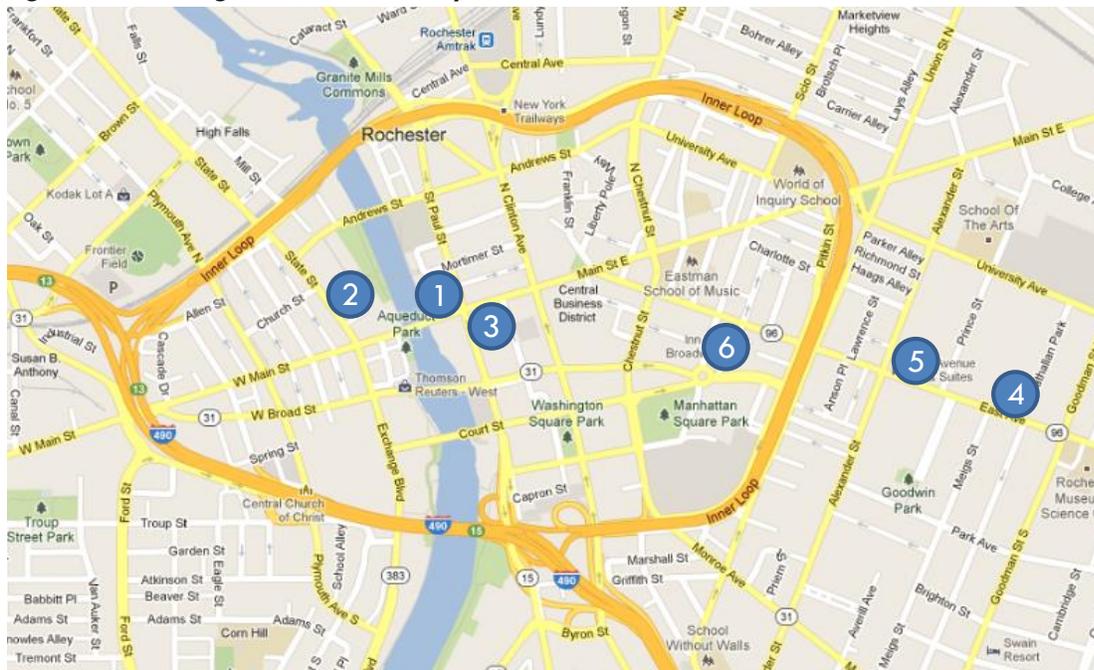
**Figure 56: Hotel Room Supply in Greater Center City Rochester and Monroe County**

Year	Greater Center City Rochester			Monroe County		
	Supply (Room Nights)	Supply (Rooms)	Change (Rooms)	Supply (Room Nights)	Supply (Rooms)	Change (Rooms)
2007	535,455	1,467		2,381,522	6,525	-
2008	535,455	1,467	-	2,419,544	6,629	104
2009	531,440	1,456	(11)	2,507,435	6,870	241
2010	531,440	1,456	-	2,522,470	6,911	41
2011	529,615	1,451	(5)	2,560,225	7,014	103
2012	504,065	1,381	(70)	2,528,222	6,927	(88)
<b>Average</b>	<b>527,912</b>	<b>1,402</b>		<b>2,486,570</b>	<b>6,813</b>	
<b>% Change (2007-2012)</b>	<b>-6%</b>	<b>-6%</b>		<b>6%</b>	<b>6%</b>	
<b>CAGR (2007-2012)</b>	<b>-1%</b>	<b>-1%</b>		<b>1%</b>	<b>1%</b>	

Source: STR, HR&A Analysis

**Figure 57** represents a list of hotels currently located in Greater Center City Rochester. Most hotels have been renovated within the past decade. The Double Tree Rochester, also known as the Strathallan, is the newest product in the market. According to Visit Rochester, there are 1,200 hotel rooms within a short walk of the Rochester Riverside Convention Center, catering to the City's conventioners.

**Figure 57: Existing Greater Center City Area Hotels**



**Figure 58: Existing Greater Center City Area Hotels**

Hotel	Rooms	Year Built or Renovated
1. Radisson Hotel Rochester Riverside	460	Apr 2009
2. Rochester Plaza	362	May 2008
3. Hyatt Regency Rochester	338	Mar 1992
4. DoubleTree Rochester The Strathallan	155	Nov 2012
5. East Avenue Inn & Suites	58	Dec 2004
6. Inn On Broadway	23	Mar 2001
<b>Total</b>	<b>1,396</b>	

Source: STR, Google, HR&A Analysis

The changes in **Figure 58** are indicative of the frequent renovation schedule of hotels that drives a fluctuation in available supply of total rooms. In 2009, the DoubleTree Rochester decreased its room supply by 11 rooms (4,015 room nights) to 140 rooms. The most notable loss of room nights occurred from 2011 to 2012, with the temporary closure of the DoubleTree from February 2012 to November 2012. It reopened with 155 rooms. In January 2011, the owners of the Radisson Hotel renovated that property and reduced the number of rooms by 5 (1,825 room nights). There was also a decrease of 70 rooms upon the renovation of the East Ave Inn in November 2012.

**Occupancy**

Occupancy rate is the percentage of room nights sold divided by the total annual supply of available rooms. It is an indication of the demand for hotel rooms in the market. An occupancy rate greater than 70% to 75% is a sign of a healthy hotel market. Hotel demand is defined as the total number of room nights booked in a given year.

Demand for hotel rooms is weak in both Monroe County and Greater Center City. As shown in **Figure 59**, demand in Monroe County has decreased by 3% (~1% annually) from 2007 to 2012. Demand in the Greater Center City area dropped by 24% from 2007 to 2012 (5% annually).

Business travelers are one of the primary sources of hotel room night demand. In 2011, there were approximately 1.7 million visitors to Monroe County, 60% of which came to the County for business. Of those visitors, typically 80% stayed overnight.<sup>43</sup> Based on the concentration of office space in Downtown Rochester, it can be expected that a large portion of business visitors will stay in the Greater Center City area.

The average occupancy rate from 2007 to 2012 in Monroe County was 58%, with a peak in 2007 of 64%. Occupancy rates in Monroe County have dropped during the recession and have yet to recover, remaining at 58% since 2011. Average occupancy rates from 2007 to 2012 were lower in the Greater Center City area, at 51%, than in the County.

**Figure 59: Demand in Room Nights**

Year	Greater Center City		Monroe County	
	Demand (Room Nights)	Occupancy (%)	Demand (Room Nights)	Occupancy (%)
2007	304,447	57%	1,521,550	64%
2008	271,872	51%	1,423,067	59%
2009	263,187	50%	1,375,287	55%
2010	261,947	49%	1,440,953	57%
2011	265,893	50%	1,480,091	58%
2012	232,520	47%	1,469,837	58%
<b>Average</b>	<b>266,644</b>	<b>51%</b>	<b>1,451,798</b>	<b>58%</b>
<b>% Change (2007-2012)</b>	<b>-24%</b>	<b>-17%</b>	<b>-3%</b>	<b>-9%</b>
<b>CAGR (2007-2012)</b>	<b>-5%</b>	<b>-4%</b>	<b>-1%</b>	<b>-2%</b>

Source: STR, HR&A Analysis

### Average Daily Rate

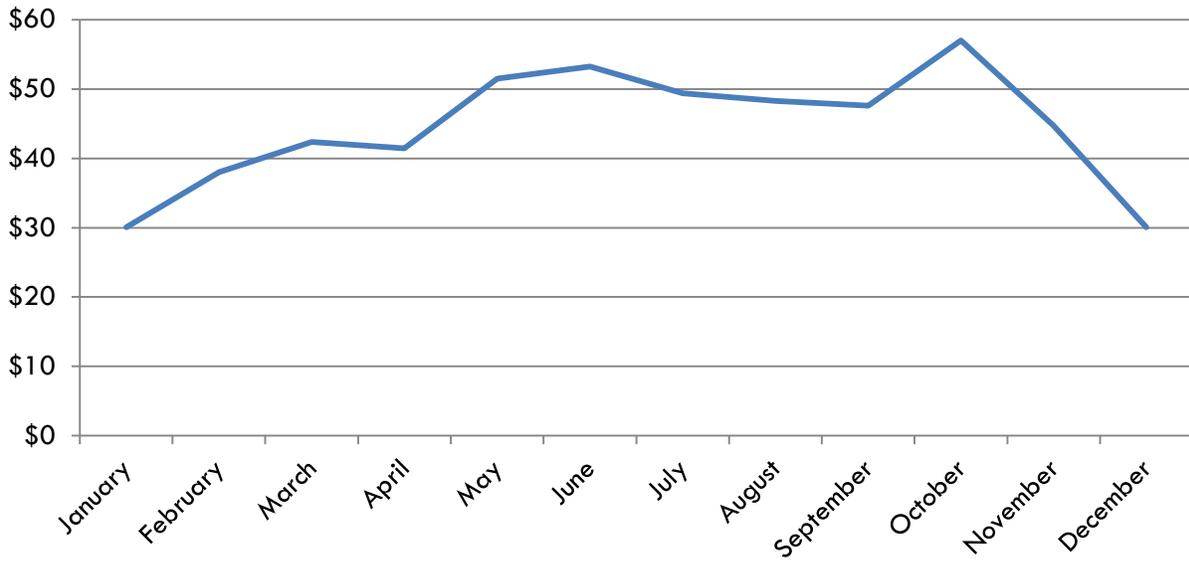
Average daily room rate (ADR) is a nominal measure of hotel revenue generation capacity and reflects total room revenue divided by rooms sold. The average ADR in the Greater Center City area was \$87 from 2007 to 2012, which is slightly lower than Monroe County's \$93.

### RevPAR

Revenue per available room (RevPAR) measure hotel productivity by measuring the combined effects of hotel occupancy and ADR. RevPAR is calculated by dividing total annual room revenue by total annual room supply to determine the actual revenue produced by each room on a nightly basis. The hotels in Monroe County had an average RevPar from 2007 to 2012 of \$54. This was higher than the RevPar of the hotels in the Greater Center City area (\$45), a result of the County having both higher occupancy and higher pre-night average rates. As shown in **Figure 60**, RevPar in the Greater Center City area fluctuates by season, with a low of \$30-\$40 in the winter months, from November to February, and highs greater than \$50 in the summer and fall.

<sup>43</sup> Visit Rochester

**Figure 60: The Greater Center City Area Hotels, Average RevPar by Month, 2007-2012**



Source: STR, HR&A Analysis

## HOTEL DEMAND ANALYSIS

### *Methodology*

To estimate supportable hotel space within the Greater Center City area by 2017, HR&A first considered hotel demand trends between 2007 and 2012. HR&A estimated the hotel demand through the year 2017 as the average demand from 2007 to 2012. The projected demand was divided by an occupancy rate of 70% to determine the required supply. HR&A then forecasted planned supply by researching hotels in the pipeline, and adding those room nights to the existing supply. Lastly, HR&A determined the gap in hotel supply by subtracting the required room supply from the planned supply.

### *Demand Analysis*

As detailed in the hotel overview, hotel demand in the Greater Center City area has decreased from 2007 to 2012, an indicator of the effects of a national economic downturn. **Figure 61** presents a summary of HR&A's hotel demand analysis with each step in calculating demand identified.

Because data is only available for the last six years, HR&A used six year average of demand instead of trying to project forward an increase or decrease in total demand. Thus, in step (a), HR&A estimates that an average of 266,600 room nights will be booked each year from 2013 to 2017.

Similarly, to determine future supply (b), HR&A calculated the average supply from 2007 to 2012 and added additional room nights based on known hotel projects in the development pipeline. According to Visit Rochester, there is a 100-room Hilton Garden Inn under construction in Downtown Rochester, near the existing Hyatt Regency. Upon completion, the Hilton Garden Inn will add 3,650 room nights to the market. Future supply is estimated at close to 562,500 annual room nights.

HR&A determined the room night supply required to meet the projected demand (c). HR&A calculated the required supply by dividing the demand by a 70% occupancy rate. An occupancy rate of 70% is an accepted industry standard occupancy hurdle rate above which a market can absorb additional hotel space. The difference between the required supply and projected supply is the supply gap (d). HR&A projects a supply gap of approximately negative 182,000 room nights in the next four years, i.e, there is a greater supply than demand.

Historically, there has been a negative supply gap (e) in the Greater Center City market of approximately 400 rooms. This represents an oversupply by almost 30%. In future years, HR&A approximates an oversupply of approximately 500 rooms. HR&A concludes that there is no market support for new hotel rooms through 2017 in the Greater Center City area.

**Figure 61: Demand Analysis, Greater Center City area**

Year	(a) Demand (Room Nights)	(b) Supply (Room Nights)	(c) Required Supply (Room Nights)	(d) Supply Gap (Room Nights)	(e) Supply Gap (Rooms)
2007	304,447	535,455	434,924	(100,531)	(275)
2008	271,872	535,455	388,389	(147,066)	(403)
2009	263,187	531,440	375,981	(155,459)	(426)
2010	261,947	531,440	374,210	(157,230)	(431)
2011	265,893	529,615	379,847	(149,768)	(410)
2012	232,520	492,859	332,172	(160,687)	(440)
<b>Annual Averages 2013-17</b>	<b>266,644</b>	<b>562,544</b>	<b>380,921</b>	<b>(181,624)</b>	<b>(498)</b>

Source: STR, HR&A Analysis

### Conclusions

- Performance metrics all indicate a very weak hotel market in Greater Center City – one that has little to no support for new hotel development. The market not only has an abundance of over-supply in hotel rooms but also is performing sub-optimally as indicated by low occupancy and RevPar.
- Business travelers are the largest market for hotel rooms in the Greater Center City area. The recession largely impacted business travel and the hotel sector. Demand will likely increase over the coming years, but is unlikely to increase at a rate that will out-clip the current excess supply.
- Rochester has several well-attended cultural institutions located on the east side of Downtown. If there were a concerted effort of a hotel operator to attract over-night visitors of those institutions while also leveraging established lodging patterns of business travelers and other area visitors, there could be potential support for a new hotel product. However, the current soft regional market does not clearly demonstrate a capturable segment of visitor population that could be effectively targeted to reach an occupancy level that would allow for the underwriting of a hotel development business model.
- The planned Hilton Garden Inn at Main Street and Stone Street will be located in a converted five-story office building. Development has been incentivized through tax credits for historic renovations.<sup>44</sup> The project also benefits from the comparatively lower costs associated with renovating an existing structure versus ground up construction. Any new hotel development at the Inner Loop East Site will be at a competitive disadvantage to this property as the costs of new construction will most likely be higher than the renovation costs incurred at the Hilton Garden Inn.

<sup>44</sup> <http://www.13wham.com>

# REAL ESTATE DEVELOPMENT SCENARIOS

## SUMMARY OF FINDINGS

HR&A estimates that the Inner Loop East Reconstruction Project (the “Project”) will create development parcels that can accommodate between 428,000 and 795,000 square feet of mixed-use real estate development. Based on real estate market metrics detailed in this report and supported by the findings in the included Real Estate Market Analysis Report, HR&A projects that new development could support a total land value of all parcels of between \$8.0 million and \$11.5 million.

This report first addresses site conditions and the feasibility of real estate development on the parcels created by the Project. The report addresses development feasibility looking at two scenarios of varying density, and the findings of the Real Estate Market Analysis Report supports both of these scenarios. The report further addresses the physical constraints of the site, construction typology, parking ratios, and real estate program and probable locations of different program components. The report then details the findings of a financial analysis that tests economics of real estate development on the Project site and identifies a range of supportable land values.

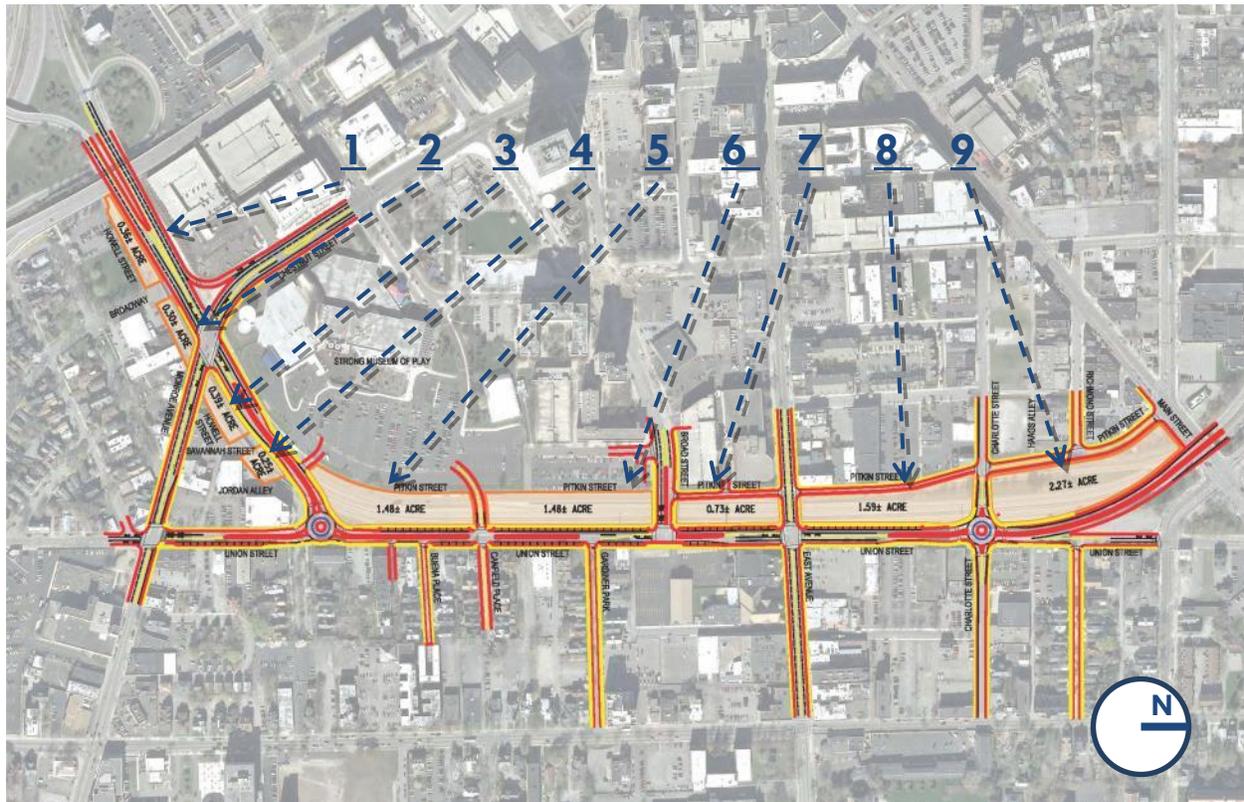
## DEVELOPMENT FEASIBILITY

The proposed Project will replace an outmoded and severely underutilized trenched highway and parallel surface streets with a single, at grade, boulevard. The redevelopment of the Inner Loop extends from Clinton Avenue on the south to Main Street on the north. The Project will create new, developable parcels in place of the excess right-of-way space. In total, the redevelopment of the Inner Loop will result in nine new development parcels with a total of 8.9 acres (386,000 SF). As identified in the table below, these parcels range in size from 0.25 acres to 2.27 acres.

**Figure 62: Inner Loop Development Parcels**

Parcel	Developable Area		Location
	SF	Acres	
1	15,682	0.36	South side of former Inner Loop between Clinton Ave and Broadway St
2	13,068	0.30	South side of former Inner Loop between Broadway St and Monroe Ave
3	16,988	0.39	South side of former Inner Loop between Monroe Ave and Savannah St
4	10,890	0.25	South side of former Inner Loop between Savannah St and Union St
5	64,469	1.48	West side of Union Street between Strong Museum and Canfield Pl
6	64,475	1.48	West side of Union Street between Canfield Pl and Broad St
7	31,799	0.73	West side of Union Street between Broad St and East Ave
8	69,260	1.59	West side of Union Street between East Ave and Charlotte St
9	98,881	2.27	West side of Union Street between Charlotte St and Main St
<b>Total</b>	<b>385,512</b>	<b>8.90</b>	<b>Total Project Spans ~0.8 miles from Clinton Ave to Main Street</b>

**Figure 63: Development Parcels Site Plan**



### **Development Scenarios**

To test a range of market-supportable development densities on site, HR&A generated two development scenarios differentiated by land use strategies and parking requirements. Each Scenario was then tested for financial feasibility as addressed below in the **Financial Feasibility** section of this report. Development that takes place at the Project Site will certainly be able to leverage its location between Downtown and the established neighborhoods of the near East Side to attract an array of commercial, retail, and residential tenants. And while pedestrian access will be a key element of this development, there will still be a market-driven requirement to include adequate parking for residents, workers and shoppers. Discussions with area developers have indicated that financing requirements for new development in Downtown Rochester and other similar urban markets are underwritten to include rather robust parking requirements. The logic behind this underwriting being that the pedestrian nature of the projects will certainly support leasing, but the regional need for automobile ownership will dictate that parking be included in any development plans.

**Scenario 1:** Assumes that each parcel will only be developed to the capacity that on site surface parking can accommodate the real estate development on that parcel.

**Scenario 2:** Assumes that each parcel will be developed to capacity based on the construction typologies outlined below. Because of an increased necessity for parking with an increased development program,

Scenario 2 assumes that structured parking of three to four stories will be built on each parcel where there is adequate land to accommodate such parking and where the associated real estate development warrants such parking accommodations.

### **Development Assumptions**

HR&A generated rough order of magnitude development scenarios for both Scenarios 1 and 2 based on the following assumptions.

**Real Estate Demand:** As detailed in the attached Real Estate Market Analysis Report, and summarized in **Figure 64**, HR&A identified a range of supportable real estate figures for the Inner Loop East site based on an analysis of real estate market metrics and current area demand trends. The analysis considers these figures to be achievable maximum development programs that could be both built and absorbed over a multi-year development roll out schedule. Scenario 2, the more densely developed scenario, achieves a development program that is closer to the project demand listed below.

**Figure 64: Real Estate Market Demand by Asset Class**

<b>Real Estate Product</b>	<b>Low Demand Estimate</b>	<b>High Demand Estimate</b>	<b>Note</b>
Residential Rental Units	130 units	195 units	Annual demand
Residential For-Sale Units)	15 units	23 units	Annual demand
Office (SF)	15,000 SF	30,000 SF	Annual demand
Retail (SF)	167,000 SF	167,000 SF	Current total supportable space

**Absorption:** With between 428,000 and 795,000 square feet of development achievable on a site that spans roughly 0.8 miles in length, HR&A anticipates a development schedule will take several years from groundbreaking to lease up and sale. Because of the scale of the site, it is likely that development will be phased to follow the completion of the Inner Loop East Reconstruction project. Regardless of whether one master developer will develop the land or each parcel will be developed by individual development teams, the time line of delivery will reflect market demand for new space. As detailed in **Figure 65**, residential development on site can be absorbed in roughly two to three years. Commercial office space will require a slightly longer absorption timeframe but is also very contingent on a developer's ability to attract anchor tenants. If a developer is able to secure a lease with a large commercial office tenant, the absorption rate for that asset class would be significantly reduced. HR&A projects that retail space will be rapidly absorbed in line with its delivery.

**Figure 65: Projected Real Estate Absorption**

<b>Real Estate Product</b>	<b>Avg. Annual Absorption Rate</b>	<b>Scenario One Program</b>	<b>Absorption (Years)</b>	<b>Scenario Two Program</b>	<b>Absorption (Years)</b>	<b>Avg. Absorption (Years)</b>
Residential For-Sale	19 Units	13 Units	0.7	48 Units	2.5	1.6
Residential Rental	163 Units	290 Units	1.8	577 Units	3.6	2.7
Office (SF)	22,500 SF	71,880 SF	3.2	85,320 SF	3.8	3.5
Retail (SF)	167,000 SF	53,660 SF	0.3	85,320 SF	0.5	0.4

**Zoning:** Newly created parcels within the Project site will be located within the boundaries of the Center City District and thus will be zoned CCD. This zoning district has no parking, set back, or density limitations. However, because of the site’s proximity to low density, primarily residential neighborhoods, overall building height and densities should be defined as to not deter from the architectural character and building scale of the established neighborhoods.

**Parking Ratios:** While there are not any formal requirements for onsite parking through zoning regulation, market conditions predicate that new development include adjacent, convenient parking. This is evident in current project underwriting for development in and around Downtown Rochester that require new developments to include on-site parking. This is further substantiated in the tenancy of commercial properties in Downtown; properties that offer onsite parking to tenants have achieved higher rents and have lower vacancies than properties that do not provide on-site parking. **Figure 66** details the parking ratios HR&A used for both Scenario 1 and 2.

**Figure 66: Parking Ratios by Development Program**

Real Estate Product	Parking Spaces	Per SF of Development
Retail	3	1,000
Office	3	1,000
<u>Residential:</u>		
Studio	1	-
One bedroom	1	-
Two bedroom	2	-
Three bedroom	2.5	-
Townhouse	2	-

The relationship between built real estate space and the associated market-driven parking requirements guided the density analysis. Scenario 1 assumes only surface parking is included on all parcels and thus a lower density is achieved. Scenario 2 assumes structured parking can be built on those parcels that can physically accommodate an efficient parking structure. Because Scenario 2 accommodates more parking, the scenario also accommodates more development.

**Construction Typology:** HR&A assumed that lightweight “stick” construction would be used in both Scenario 1 and 2. Compared to more robust concrete and steel structural systems, this construction typology is inexpensive and allows for an expeditious development timeline. HR&A assumed a building height of four stories on most parcels and one-story retail structure on those parcels with limited land for parking.

**Program Massing:** HR&A applied the following set of standard building massing and floor plate sizes to each development parcel. HR&A used these standards in conjunction with the parking requirements mentioned above to come to an overall development square footage for each parcel.

- **Residential for sale:** building depth of 35 feet and a height of up to four stories.
- **Residential rental:** building depth of 60 to 65 feet utilizing a double loaded corridor, multi-family arrangement and a height of up to four floors.

- **Retail:** Minimum depth of 60 feet. On prime street corners, depths of up to 100 feet were assumed. Retail was included both as stand-alone, single-story structures on the smallest parcels and as first-floor space of commercial or residential structures on larger parcels.
- **Commercial:** Floor plate sizes of 5,000 to 12,000 square feet.

**Residential Unit Mix and Unit Sizes:** Based on the findings of the Market Analysis Report, HR&A included a mix of residential product types and unit sizes. **Figure 67** details the unit sizes and percentage of total residential area for each unit type.

**Figure 67: Residential Unit Mix and Size**

Residential Unit Type	Size (SF)		% of Residential SF
	Net*	Gross	
<b>Rental Unit Type</b>			
Studio	550	650	10%
One bedroom	725	850	50%
Two bedroom	1,000	1,175	25%
Three bedroom	1,250	1,470	15%
<b>For Sale Unit Type</b>			
Studio	n/a	n/a	0%
One bedroom	850	1,000	33%
Two bedroom	1,200	1,410	33%
Three bedroom	1,500	1,765	33%
Townhouse	2,200	2,200	

\*Assumes an efficiency factor of 85%

**Real Estate Program by Location:** In the expanse of the approximately 0.8 miles of development sites from Clinton Avenue to Main Street, there are several sites that could command additional value if developed for retail or commercial uses. Retail tenants that would consider locating in this area would prefer those sites that provide the greatest vehicular and pedestrian access. They would also prefer to be connected to established retail nodes. The frontages of Monroe Avenue, Broad Street, Main Street, and East Avenue are all prime locations for retail real estate. Similarly, commercial office tenants desire spaces that are located within proximity of established office clusters. These sites often overlap with those sites identified as prime for retail uses. Thus both Scenario 1 and 2 assume commercial office space occupying several floors above retail space where parcel dimensions allow for adequate building sizes and parking. There are also some parcels that because of size and location, would best be developed as residential product. These parcels are typically on less travelled streets and/or adjacent to existing residential buildings.

For those parcels that are less than half an acre in total area, HR&A considered a reduced development plan and applied the same assumptions for both scenarios 1 and 2. Parcel 1 is a very narrow 0.36 acre plot of land that varies in width from 37 feet to 61 feet. HR&A assumed that only single-family townhomes could reasonably fit on this site in both Scenarios 1 and 2. Parcels 2, 3, and 4 are also small parcels ranging from 0.25 acres to 0.39 acres. Because each site is at least 60 feet in width (a dimension required to have a double loaded parking lane) and is proximate to Monroe Ave, an active retail corridor, HR&A assumed surface parking and a single-story retail program for each of these three parcels in both Scenarios 1 and 2.

## Development Program

HR&A found that the land created by the Project could support between 428,000 and 795,000 square feet of development. Figure 68 and Figure 69 summarize the total development square footage by parcel and development program for Scenarios 1 and 2. The figures also include a summary of parking included on each site. Each scenario assumes lightweight construction and a maximum building height of four stories. Because Scenario 2 includes structured parking where site dimensions allow, the parcels can accommodate an increased development density, resulting in an overall development program that is roughly double that of Scenario 1.

**Figure 68: Scenario 1 Development Program by Parcel**

Parcel	Program	Program Size	Parking Spaces
1	For Sale Residential	13 Townhomes	26
2	Retail	5,600 SF	23
3	Retail	7,400 SF	30
4	Retail	4,850 SF	19
5	Rental Residential	96 units	129
6	Rental Residential	96 units	129
7a	Retail	6,000 SF	18
b	Office	18,000 SF	54
8a	Rental Residential	61 units	83
b	Retail	5,640 SF	17
c	Office	16,920 SF	51
9a	Rental Residential	38 units	51
b	Retail	24,170 SF	24
c	Office	36,960 SF	111
<b>Total</b>		<b>427,913 SF (inclusive of 303 residential units)</b>	<b>736</b>

**Figure 69: Scenario 2 Development Program by Parcel**

Parcel	Program	Program Size	Parking Spaces
1	For Sale Residential	13 Townhomes	23
2	Retail	5,600 SF	17
3	Retail	7,400 SF	19
4	Retail	4,850 SF	19
5	Rental Residential	160 SF	216
6a	Rental Residential	156 units	210
b	Retail	6,900 SF	21
7a	For Sale Residential	35 condos	59
b	Retail	6,580 SF	20
c	Office	19,740 SF	59
8a	Rental Residential	146 units	196
b	Retail	9,540 SF	29
c	Office	28,620 SF	86
9a	Rental Residential	115 units	155
b	Retail	48,620 SF	146
c	Office	36,960 SF	111
<b>Total</b>		<b>795,062 SF (inclusive of 625 residential units)</b>	<b>1,385</b>

**Figure 70** is a side-by-side comparison of the total development program by real estate product type. As shown, there is a significant difference in the number of residential units and the total retail space. HR&A projects current demand of approximately 167,000 square feet of retail space. Both scenarios could potentially absorb that demand in one year. The absorption of the rental residential product in Scenario 1 would take longer than one year and in Scenario 2 would require two to four years to be fully absorbed. The office product in each scenario would also require several years of absorption. With a project of this scale in a medium sized market like Rochester, it can be anticipated the development would be phased over a several year period and thus both scenarios would have an absorption rate that would correspond to product delivery.

**Figure 70: Summary of Scenario 1 and 2 Real Estate Development Programs**

Real Estate Program	Scenario One		Scenario Two	
	<i>SF</i>	<i>Units</i>	<i>SF</i>	<i>Units</i>
For Sale Residential	27,300	13	73,452	48
Rental Residential	275,073	290	546,800	577
Retail	53,660	-	89,490	-
<u>Office</u>	<u>71,880</u>	=	<u>85,320</u>	=
<b>Total</b>	<b>427,913</b>	<b>303</b>	<b>795,062</b>	<b>625</b>

**FINANCIAL FEASIBILITY**

*HR&A identified a total land value of the new parcels that will be created by the Project to have a value of between \$8.0 and \$11.5 million.* To arrive at this range of land values, HR&A performed a residual land value/stabilized-year cash-flow analysis to identify potential land values for the new development parcels.

**Financial Analysis Assumptions**

HR&A used a set of assumptions for both Scenarios 1 and 2 to back into the estimated land value. These assumptions include the following.

**Return on Investment:** For-Sale Residential product is developed to have a one-time return. As a result, the anticipated returns for For-Sale development products are significantly higher than those that generate multi-year cash-flow. For this analysis, HR&A used an estimated return of 30% for the For-Sale Residential component of the development and a range of 7.5% to 8.5% for the rental components of the development that will provide annualized returns to the developer. These returns are based on stabilized year returns cited in interviews with members of the local development community as well as reflected in cap rate comparisons plus a small incremental spread for similar products in other markets that have comparable economic and real estate markets. **Figure 71** demonstrates the anticipated returns that HR&A used in the analysis to calculate land value.

**Figure 71: Anticipated Returns (Unleveraged cash-on-cash)**

<b>Real Estate Program</b>	<b>Stabilized Year Return</b>
For Sale Residential ( <i>one-time return at time of unit sale</i> )	30.0%
Rental Residential	7.5%
Retail	8.0%
Office	8.5%

**Development Cost:** HR&A used a set of conservative development costs for each real estate product type. These costs were calibrated using RS Means Online Construction Costs estimator that provides total development costs estimates based on building program, construction typology, and geographic location. HR&A confirmed these assumptions through interviews with members of the Rochester real estate development community. **Figure 72** demonstrates the total development costs (exclusive of land costs) by real estate product.

**Figure 72: Development Costs**

<b>Real Estate Program</b>	<b>Total Development Costs*</b>
For Sale Residential	\$135 / SF
Rental Residential	\$123 / SF
Retail	\$107 / SF
Office	\$160 / SF
Surface Parking	\$3,000 / Space
Structured Parking	\$15,000 / Space

\*Excluding Land Costs

**Operating Revenue and Expenses:** Based on the findings included in the Real Estate Market Analysis Report, HR&A used a range of gross revenues and operating expenses for each real estate product to calculate the stabilized year return on investment. For the For-Sale Residential product, HR&A used a constant value of \$200 per square foot as a sales price for those units. **Figure 73** demonstrates the operating revenue and expenses assumptions used.

**Figure 73: Stabilized Year Achievable Revenue and Expenses**

<b>Real Estate Program</b>	<b>Rent per SF</b>	<b>OPEX per SF</b>
Rental Residential	\$1.55 / Month	35%
Retail	\$15 / Year	10%
Office	\$22 / Year	15%

### **Land Value**

Using the assumptions above, HR&A estimated the land value by dividing the stabilized year net revenue by the return on investment and then subtracted the non-land development costs. The weighted land values by real estate product type were aggregated to find a total land value per square foot and then multiplied by the total development land area to find the total value.

In Scenario 1, the scenario that assumes less dense development and only surface parking, HR&A found that the development program detailed in this report could support a land value of \$11.55 million, or \$30 per square foot of land. In Scenario 2, the scenario that assumes a higher density of development and structured parking, HR&A found that that development could support a land value of \$8.04 million or \$21 per square foot. The increased costs of developing structured parking more than offset the increased revenue generated by a larger development program. Thus, Scenario 2 supported a lower land value in all asset classes and in particular Office and Retail which would require significant parking structures. **Figure 74** summarizes supportable land values for each scenario. HR&A integrated these land value results into the Inner Loop East Reconstruction Project's overall Benefit Costs Analysis.

**Figure 74: Supportable Land Values**

Real Estate Program	Scenario 1		Scenario 2	
	<u>% of Total Program</u>	<u>Supportable Land Value</u>	<u>% of Total Program</u>	<u>Supportable Land Value</u>
For Sale Residential	6%	\$432,000	9%	\$1,117,000
Rental Residential	64%	\$5,948,000	69%	\$5,919,000
Retail	13%	\$2,437,000	11%	\$629,000
Office	17%	\$2,736,000	11%	\$372,000
<b>Total</b>		<b>\$11,553,000</b>		<b>\$8,037,000</b>

## SURROUNDING AREA REAL ESTATE VALUE IMPACT

As cities continue to focus on migration of residents back into downtowns, the removal of highways in urban areas is “in keeping with today’s smart growth movement.”<sup>45</sup> Currently, there are no large-scale, multi-city hedonic studies of effects of highway removal projects on land values. However, several case studies and qualitative analyses of urban areas that have been revitalized by highway removals are available. The principal finding of these studies is that property values in areas proximate to removed urban highways increase over time and typically at higher rates than the rest of the City. Furthermore, as in other types of infrastructure projects, land value begins to increase when the project is announced, not necessarily when the project is completed, as the anticipated new amenity is immediately reflected in real estate listings.<sup>46</sup> Below, is a review of empirical evidence of land value changes due to four urban highway removals. HR&A selected the following case studies based upon relevance to the Project, as well as the availability of data on quantified changes in land value.

**Figure 75: Observed Property Value Increases Surrounding Highway Removal Projects**

	Value Increase over City Average Growth	Time Period	Years	Compound Annual Growth Rate	Study Area (Distance from Highway)
Boston Central Artery	38%	15 Years	1988 - 2003	2.17%	Adjacent properties
Milwaukee Park East Freeway	20%	5 Years	2001 - 2006	3.71%	Within ¼ Mile
San Francisco Central Freeway	25%	At least 13 years	~1992 - 2005	1.73%	Within ¼ Mile

Sources: *The Metropolitan Highway System & Urban Transformation, Congress for the New Urbanism, City of Seattle*

### CASE STUDIES

#### **Boston**

The Central Artery was an elevated urban highway that cut through the heart of downtown Boston. Boston’s Central Artery/Tunnel Project, colloquially known as the “Big Dig,” was conceived as a way to increase mobility through the city faster in response to growing traffic delays in Boston. The project put portions of the highway underground and rerouted other sections of the highway. Construction began in 1992 and was completed in 2006. One of the components of this large project was the creation of the Rose Fitzgerald Kennedy Greenway, which is a series of parks on a portion of the tunneled highway in Downtown Boston. According to an analysis of the assessed values of commercial properties, between 1988 and 2003 property values directly adjacent to the Greenway increased by 79%. When compared to the citywide property value increase, these properties increased by 38% more than the city as a whole.<sup>47</sup> Some of these property value increases are in part due to the increase in access to open space in

45 “Elevated Freeways to Surface Boulevards: Neighborhood and Housing Price Impacts in San Francisco,” Robert Cervero, et al., (*Journal of Urbanism*, Vol. 2, No. 1, March 2009) p. 33.

46 “Freeway Deconstruction and Urban Regeneration in the United States.” Robert Cervero. <http://www.uctc.net/papers/763.pdf>

47 “Economic Impact of the Massachusetts Turnpike Authority & Related Projects,” *The Metropolitan Highway System & Urban Transformation*, Vol. II, February 2006. <http://www.massdot.state.ma.us/portals/0/docs/infoCenter/additionalDocs/MTA-Economic-V2.pdf>

the area. Quantitative modeling of the Boston region shows that proximity to an above-grade highway lowers property values while proximity to open space increases values.<sup>48</sup>

### **Milwaukee**

Milwaukee's Park East Freeway ran through downtown Milwaukee, destroying the historical grid network of the surrounding neighborhood. Demolition of Milwaukee's raised Park East Freeway began in 2002 and construction of a replacement boulevard was completed in 2006. The removal of the highway created 24 new acres available for private development in downtown Milwaukee.<sup>49</sup> To help finance a portion of the project, the city created a tax increment financing (TIF) district surrounding, and within approximately one quarter of a mile from the removed highway.<sup>50</sup> Property values within this TIF district increased by 45% between 2001 and 2006. For comparison, property values for the city as a whole increased by 25% during this time.<sup>51</sup> In 2004, the City of Milwaukee released a master plan and a form-based code to promote mixed-use development in the former highway neighborhood.<sup>52</sup>

### **Portland, OR**

As part of its waterfront revitalization and urban renewal projects in the 1970s, Portland removed its Harbor Drive highway that ran along the Willamette River in 1978. Harbor Drive was the first urban highway removal project in the United States. The site of the former highway was then converted into a pedestrian friendly boulevard connected to the city's downtown street grid and a 37 acre park, now known as the Tom McCall Waterfront Park. Between 1974 and 2008, land values near the park increased by an average of 10.4% annually.<sup>53</sup> By 2002, the increase in value was 7% larger than the City of Portland as a whole.<sup>54</sup> This area is within the Portland Downtown Waterfront Urban Renewal Area and covers over 300 acres that includes the newly created park and land within half a mile to the west of the park.<sup>55</sup> The city also cites reductions in crime in this area due to the removal of the highway.<sup>56</sup>

### **San Francisco, Central Freeway**

San Francisco's double-deck Central Freeway was severely damaged by the Loma Prieta earthquake in 1989. After an outpouring of public support for the removal of the highway from surrounding neighbors, it was closed by the city in 1992 and replaced by the pedestrian friendly Octavia Boulevard in 2005. Part of this highway removal project was the construction of a park in the center of the Boulevard that is widely used today. In 2007, the area adopted a neighborhood plan to help guide development.<sup>57</sup> In a study conducted in 2009, researchers found that as distance from the Central Freeway increased – while the highway was still intact – housing prices also increased. However, when the Boulevard was completed in

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48 "New Estimates of the Demand for Urban Green Space: Implications for Valuing the Environmental Benefits of Boston's Big Dig Project." Kayo Tajima (Journal of Urban Affairs, Vol. 25, Issue 5) December 2003.

49 "Park East Removal and Redevelopment History," City of Milwaukee, Department of City Development. <http://city.milwaukee.gov/Eastredevelopment/Park-East-history.htm>

50 City of Milwaukee, Tax Incremental Districts: <http://city.milwaukee.gov/ImageLibrary/>

51 Congress for the New Urbanism. <http://www.cnu.org/highways/milwaukee>

52 City of Milwaukee, Redevelopment Plan. <http://city.milwaukee.gov/Redevelopment-plan/Read-the-plan.htm>

53 "Life and Death of Urban Highways." Institute for Transportation & Development Policy, March 2012. p. 9. [http://www.itdp.org/documents/LifeandDeathofUrbanHighways\\_031312.pdf](http://www.itdp.org/documents/LifeandDeathofUrbanHighways_031312.pdf)

54 "Case Studies in Urban Freeway Removals." City of Seattle, January 2008. <http://www.seattle.gov/transportation/>

55 Ibid.

56 Ibid.

57 "Central Freeway and Octavia Boulevard Circulation Study," San Francisco County Transportation Authority, June 2012. <http://www.sfcta.org/transportation-planning-and-studies/current-research-and-other-projectsstudies/central-freeway-and-octavia-boulevard-circulation-study>

2005, prices of housing near the Boulevard increased. This finding confirms that highways lower property values.<sup>58</sup> Another study cites condominium price increases generally in the neighborhood of this project. Prior to the highway removal, condominium prices were 66% of the San Francisco average, while the price increased to 91% of the San Francisco average after the construction of the Boulevard, with the largest increases near Octavia Boulevard.<sup>59</sup> The border of this neighborhood is within a quarter mile from the removed highway.

### ***San Francisco, Embarcadero Freeway***

The Embarcadero Freeway divided downtown San Francisco from the Bay, running along the eastern side of the City. In the 1980s, there had been discussions of removing the freeway, fueled. In 1989, the Loma Prieta earthquake damaged the freeway, and it was found to be less expensive to demolish the highway than to repair it.<sup>60</sup> In 1991, the highway was removed and replaced by a multilane boulevard that included bike lanes and a dedicated mass-transit lane. The effects of this highway removal have not been quantified in terms of land values; however, there have been many neighborhood improvements and growth. These changes include new office buildings and a high density mixed-use development where industrial uses had once been. The number of jobs in the area, which was defined by the census tracts that were intersected by the freeway, increased by 23% between 1990 and 2005, as compared to a nearby area that only increased by 5.5%. The number of housing units increased by 54% between 1990 and 2000, as compared to a nearby area that only increased by 31%.<sup>61</sup>

## **ROCHESTER LAND VALUE ANALYSIS**

Milwaukee's highway removal example is likely the best comparison to Rochester's proposed project for three reasons. First, and similar to Milwaukee, the cleared highway in Rochester will not be dedicated as a public park but instead for private development. Parks provide community amenities that increase land values. For that reason, the value increase seen in San Francisco, Boston, and Portland can in part be attributed to the newly constructed park, as well as the highway removal. Second, Milwaukee's study area for the land value increase is most similar in size to the parcels examined for the Rochester Inner Loop Project. In fact, the study size for Milwaukee's land value increase is larger than the study area examined for this project. Third, and finally, the cities of Rochester and Milwaukee are in general more similar in nature because they have experienced urban stagnation in recent decades due to loss of industry while San Francisco, Portland, and Boston have had stronger real estate markets.

Given the case studies of urban highway removal, HR&A conservatively estimates that the Inner Loop East Reconstruction Project will generate a 5% increase in land value between 2013 and 2016 for the study area defined in **Figure 76**, which represents an area of project influence extending in all directions no further than one quarter mile. Based upon current assessment records provided by the City of Rochester, this increase represents \$16.7 million in incremental land value created. The increase in value experienced by surrounding properties in Milwaukee was approximately 3.7% on an annualized basis. With an estimated 5% increase over three years for Rochester, this would be an increase of 1.64% on an

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58 "From Elevated Freeways to Surface Boulevards: Neighborhood and Housing Price Impacts in San Francisco," Robert Cervero, et al., (Journal of Urbanism, Vol. 2, No. 1, March 2009, 31-50). <http://www.uctc.net/research/papers/UCTC-FR-2011-06.pdf>

59 Congress for the New Urbanism. <http://www.cnu.org/highways/sfoctavia>

60 "From Elevated Freeways to Surface Boulevards: Neighborhood and Housing Price Impacts in San Francisco," Robert Cervero, et al., (Journal of Urbanism, Vol. 2, No. 1, March 2009). p. 39.

61 Ibid. at p. 39-40

annualized basis, making this estimate significantly more conservative than any of the value increases realized in the precedent case studies.

**Figure 76: Study Area for Rochester Inner Loop East Project**



**Figure 77: Estimated Property Value Increases for Rochester Inner Loop East Project**

Land Use Type	2013 Land Value	5% Increase over 2013 Values
Residential	\$ 39,567,500	\$ 1,978,375
Commercial	\$ 210,660,350	\$ 10,533,018
Industrial	\$ 302,400	\$ 15,120
Other	\$ 83,304,055	\$ 4,165,203
Vacant	\$ 1,003,100	\$ 50,155
<b>Total</b>	<b>\$ 334,837,405</b>	<b>\$ 16,741,870</b>

Source: Rochester Parcel Assessments and HR&A

As shown in the table above, assuming a 5% increase between 2013 and 2016 on the parcels in the Rochester Inner Loop study area, the removal of the Inner Loop East highway would increase land values by a total of \$16.7 million. This increase in value would equate to a land value in the study area totaling \$352.6 million in 2016 due to the removal of the Inner Loop.