

Innovative Economic and Financial Tools for TOD and Smart Growth

Providence Streetcar and Southern NH
Build-Out Scenarios



Presented to New Partners for Smart Growth Conference

February 4, 2012

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Today's Presentation

- Benefits and costs of alternative land use build-out scenarios
 - Triple bottom line impacts – economic, environmental, social (“fiscal analysis plus”)
 - Goffstown, NH future build-out scenarios – status quo, smart growth, community vision
- Providence Streetcar development impacts and value capture strategies
 - Risk-based development estimates of TOD
 - Tax increment financing strategy to help fund the streetcar



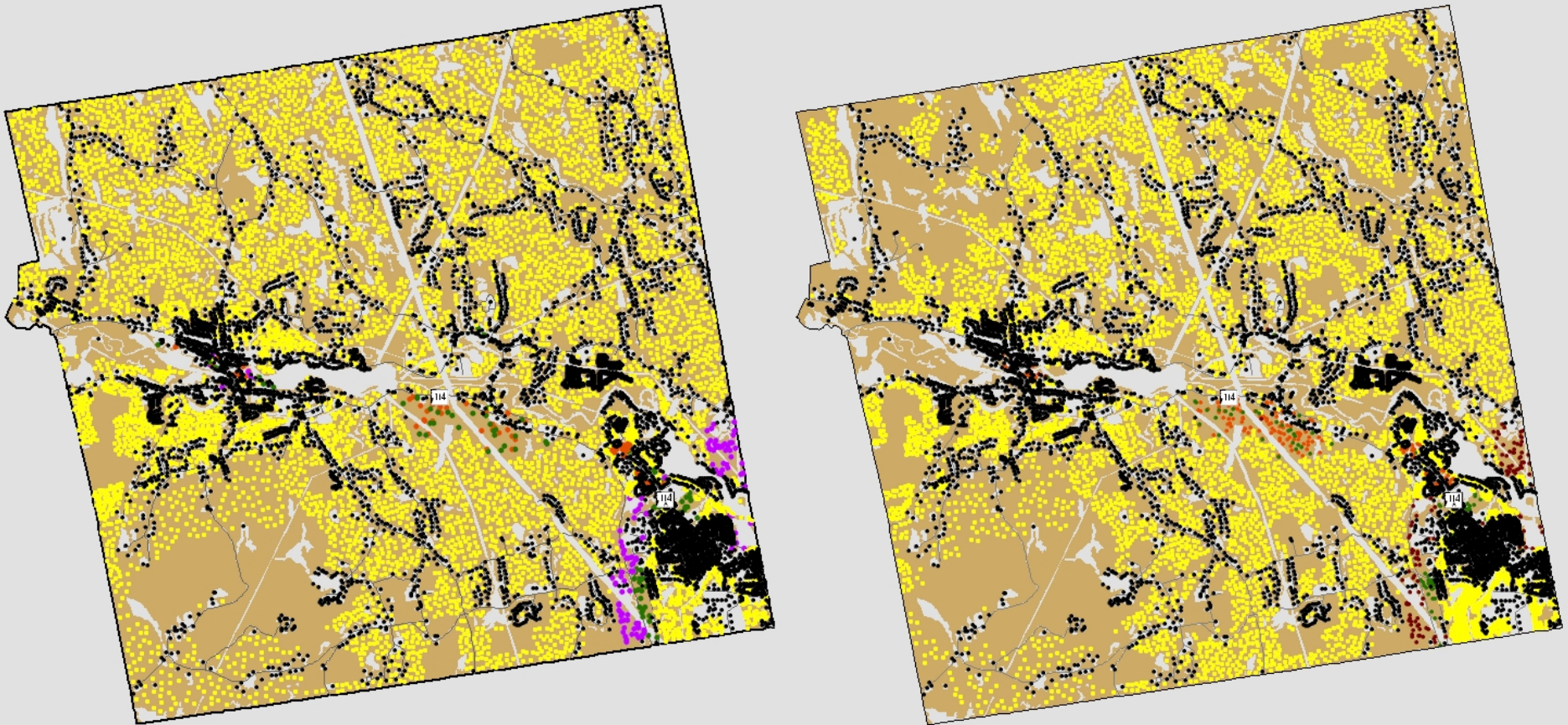
Goffstown
Development
Alternatives – Benefits
and Costs

CTAP SNHPC Buildout Reports

- Five-year initiative to assist communities in development planning with widening of I-93
- State, regional, local, non-profit partnership
- Promote beneficial growth patterns and development to minimize negative effects on community, open space, traffic, environment, etc.



Base and Standard Alternative Buildouts



23 square miles of buildable land area in Base Buildout – 16.9 square miles in Standard Alternative

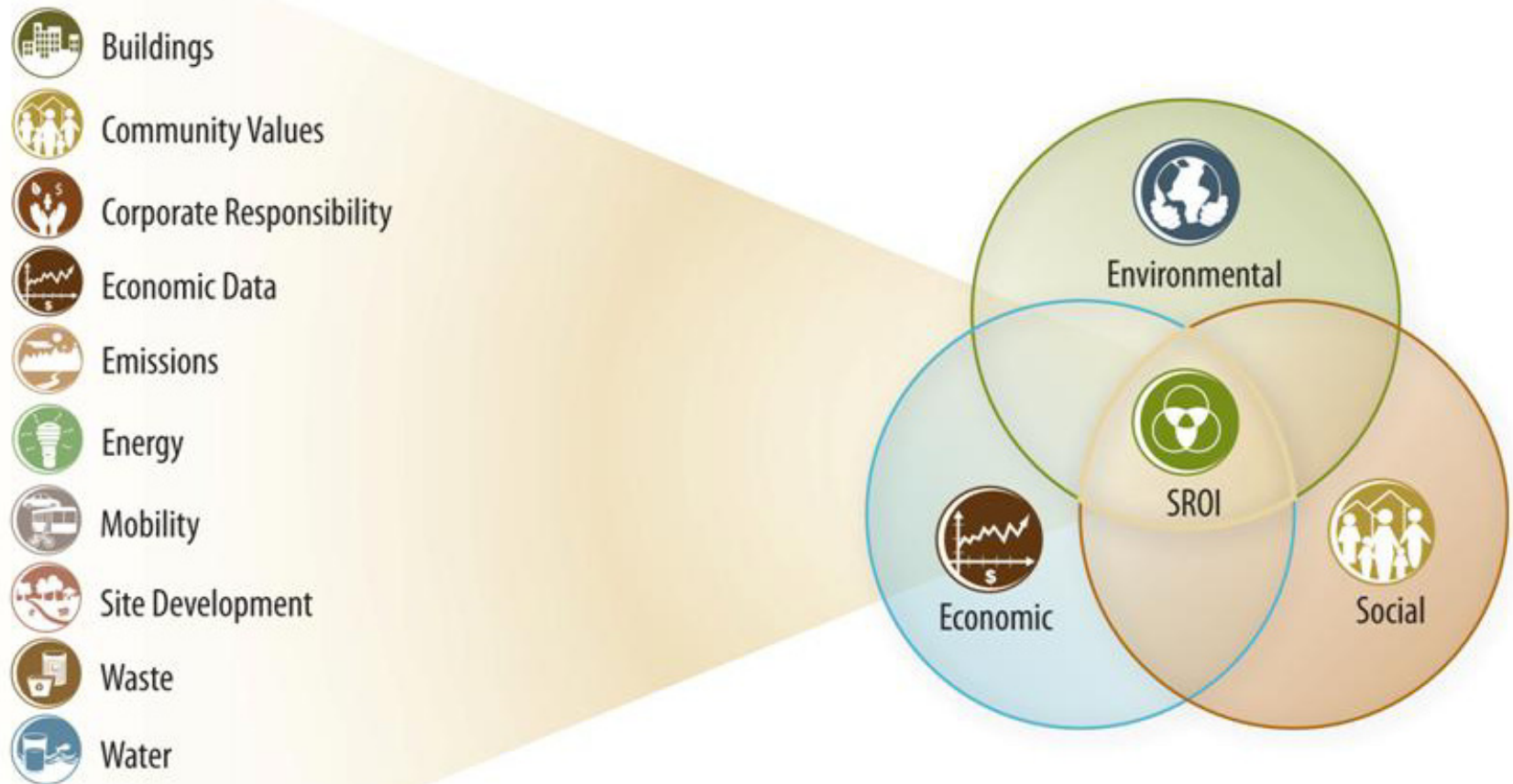
Indicators from SNHPC Analysis

Category	Indicator	Units	Current	Base Buildout	Percent Change	Standard Alternative Scenario	Percent Change	Town Scenario	Percent Change
Buildout	Developed Residential Acres	Acres	3,552	17,778	401%	14,739	315%	17,675	398%
	Developed Non-Residential Acres	Acres	1,246	1,589	28%	1,566	26%	1,621	30%
	Residential Dwelling Units	d.u.'s	5,705	12,487	119%	12,216	114%	12,281	115%
	Commercial Floor Area	sq. ft	3,480,786	5,480,440	57%	5,611,243	61%	5,770,272	66%
Demographics & Employment	Population	Persons	14,605	31,967	119%	31,273	114%	31,439	115%
	School Kids Population	School Kids	2,760	6,042	119%	5,911	114%	5,942	115%
	Labor Force Population	Workers	5,972	13,071	119%	12,788	114%	12,856	115%
	Commercial Jobs	Jobs	4,229	6,659	57%	6,818	61%	7,011	66%
	Jobs to Housing Ratio	Jobs/d.u.	0.74	0.53	-28%	0.56	-24%	0.57	-23%
Environmental & Open Space	Open Space Supply	Acres	18,894	4,315	-77%	7,387	-61%	4,396	-77%
	Impervious Surfaces	Percent	4.7	15.9	238%	13.6	189%	15.9	238%
Land Use Characteristics	Total Density	Persons/m ²	388	850	119%	832	114%	836	115%
	Residential Housing Density	d.u./Acre	1.61	0.7	-57%	0.83	-48%	0.69	-57%
	Residential Development Footprint	Acres/d.u.	0.62	1.42	129%	1.21	95%	1.44	132%
	Recreation Density	Ft ² /person	590	267	-55%	275	-53%	274	-54%
	Housing Proximity to Recreation	Miles	0.71	0.87	23%	0.81	14%	0.79	11%
	Housing Proximity to Community Centers	Miles	1.1	1.4	27%	1.4	27%	1.3	18%
	Housing Proximity to Amenities	Miles	0.71	0.94	32%	0.91	28%	0.87	23%
	Walkability	Percent	23.33	13.69	-41%	13.7	-41%	14.93	-36%
	Housing Proximity to Transit	Miles	2.52	3.05	21%	2.84	13%	2.8	11%
Employment Proximity to Transit	Miles	2.52	3.05	21%	2.84	13%	2.8	11%	
Municipal Demands	Fire & Ambulance Service	Calls/Years	1,168	2,577	121%	2,502	114%	2,515	115%
	Police Service	Calls/Years	18,548	40,598	119%	39,717	114%	39,928	115%
	Solid Waste Demand	Annual Tons	7,887	17,262	119%	16,887	114%	16,977	115%
Water & Energy Use	Total Energy Use	mbtu/hh/yr	1,003,227	1,885,937	88%	1,776,024	77%	1,762,124	76%
	Residential Energy Use	mbtu/hh/yr	655,845	1,338,989	104%	1,206,022	84%	1,186,251	81%
	Commercial Energy Use	mbtu/hh/yr	347,382	546,948	57%	560,002	61%	575,873	66%
	Residential Water Use	mgals	699	910	30%	810	16%	803	15%
Transportation	Vehicles	Vehicles	10,497	22,976	119%	22,477	114%	22,597	115%
	Vehicle Trips per Day	Trips/Day	51,593	113,347	120%	107,440	108%	107,176	108%
	Annual CO Auto Emissions	Grams/Yr	7,771,094	17,113,453	120%	15,862,178	104%	15,733,048	102%
	Annual CO ₂ Auto Emissions	Tons/Yr	161	354	120%	328	104%	325	102%
	Annual NO _x Auto Emissions	Grams/Yr	487,201	1,072,911	120%	994,464	104%	986,368	102%
	Annual Hydrocarbon Auto Emissions	Grams/Yr	981,574	2,161,616	120%	2,003,566	104%	1,987,256	102%

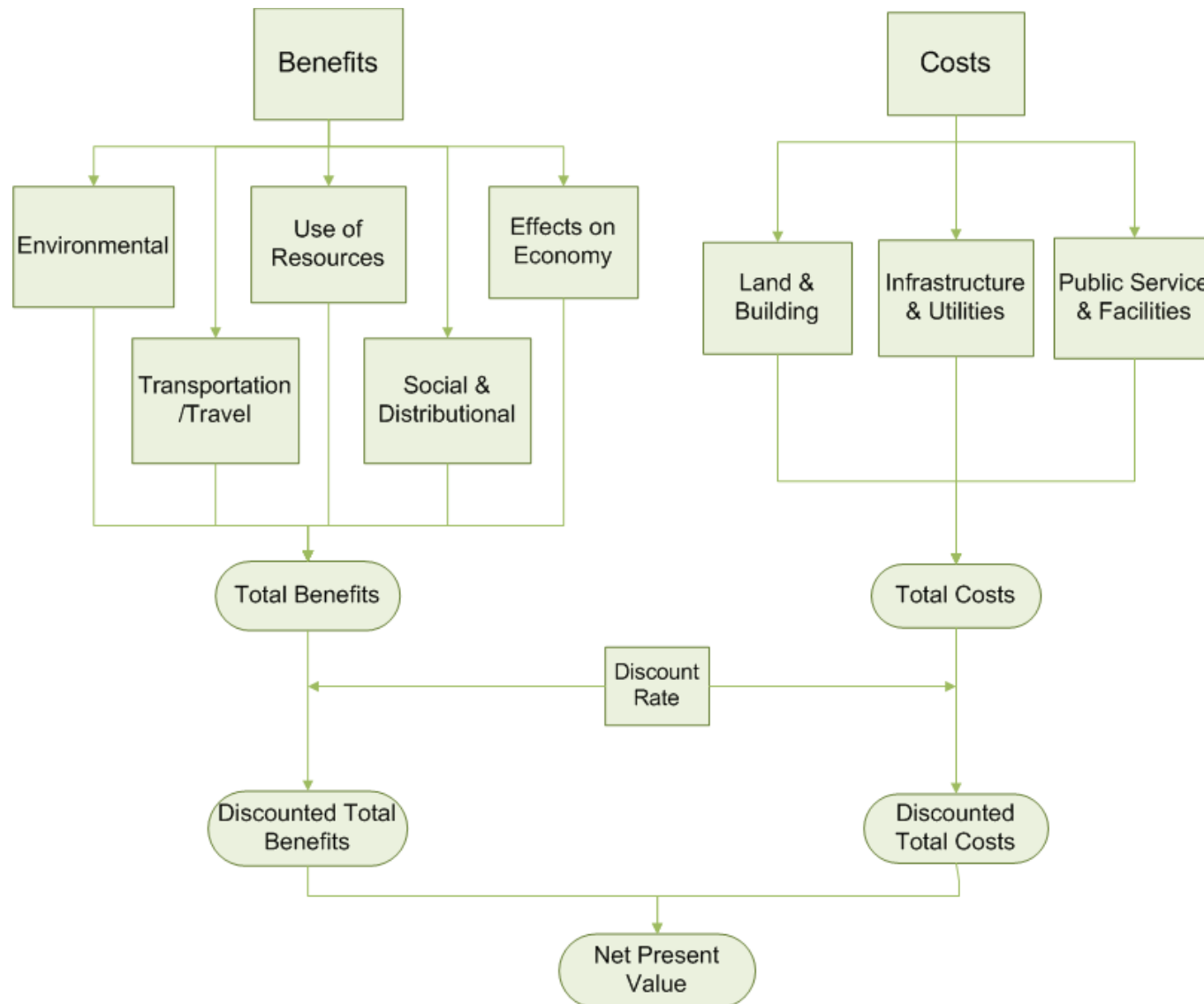
Objective of Benefit-Cost Analysis of Land Use Development Alternatives

- Estimate the benefits and costs, in dollar terms, of alternative development plans and buildout
- Social welfare effects on the community
 - Productivity, efficiency and reduced future costs to individuals, community or broader environment
- Not a fiscal impact analysis
 - Fiscal impact analysis refers *only* to public revenue and expenditures impacts of development investments
- Comparative analysis – benefits and costs compared to Base Buildout
 - Not a standard benefit-cost analysis as we assess development plans not individual investments

Sustainable Return on Investment (SROI) – Measuring the Triple Bottom Line



Benefit-Cost Analysis Framework



Potential Categories of Benefits (or Cost Savings)

- Environmental
 - Air, water or noise pollution, storm-water run-off, vegetation/wildlife
- Transportation / Travel
 - Vehicle miles of travel (VMT), vehicle hours of travel (VHT), delay, accidents
- Use of Resources
 - Energy consumption (kWH, therms of gas), water use, solid waste
- Effects on the Economy
 - Employment to previously unemployed, increases in land value
- Social & Distributional
 - Crime, poverty, homelessness, affordable housing

Potential Categories of Costs

- Infrastructure & Utilities
 - Roadway and transit infrastructure, water/sewer, solid waste, telecommunications
- Public Service & Facilities
 - Emergency services (fire, police, EMS/hospital), education, libraries, legal system
- Land & Building
 - Costs of land (acreage) and buildings developed – can be difficult to value

Driving Factors for Costs and Benefits

- Land devoted to residential, commercial, civic, green space
 - Directly impacts population and commercial activity (jobs)
- Single-family, multi-family and mixed use development
 - Impacts energy consumption, spatial spread of growth
- Population
 - Most public expenditures on per capita basis, transportation use, energy consumption
- Distance (sprawl) and density of use
 - Infrastructure to serve growth, average length of trips

New Residential Dwelling Units by Scenario and Type

	Base Scenario		Standard Alternative		Community Scenario	
	New Dwelling Units	Share	New Dwelling Units	Share	New Dwelling Units	Share
Single Family	6,171	91%	5,360	82%	5,579	85%
Multi-Family	304	4%	783	12%	775	12%
Mixed Use	307	5%	358	5%	222	3%
Total	6,782		6,511		6,576	

Summary of Annual Costs and Benefits By Scenario (2030, Millions of Dollars)

Millions of 2008 \$	Base Scenario	Standard Alternative	Community Scenario	Standard Alternative to Base	Community Scenario to Base
Infrastructure & Utilities	\$42.6	\$35.1	\$41.7	\$7.4	\$0.9
Public Service & Facilities	\$86.5	\$84.6	\$85.0	\$1.9	\$1.6
Total Costs	\$129.1	\$119.7	\$126.6	\$9.4	\$2.5
Environmental	\$16.2	\$15.2	\$15.9	\$1.0	\$0.4
Transportation	\$66.9	\$60.5	\$66.0	\$6.4	\$0.9
Energy Use	\$82.1	\$79.6	\$80.9	\$2.5	\$1.1
Effects on Economy	\$2.6	\$2.7	\$3.0	\$0.2	\$0.4
Total Environmental, Transportation, Energy and Economic Effects	\$167.8	\$158.1	\$165.7	\$10.0	\$2.8
Total Cost Savings and Benefits				\$19.4	\$5.3

Summary of Annual Costs and Benefits By Scenario with Population Held Constant (Millions of Dollars)

Millions of 2008 \$	Standard Alternative to Base	Community Scenario to Base
Costs	\$7.3	\$0.8
Infrastructure & Utilities	\$7.3	\$0.8
Public Service & Facilities	\$0.0	\$0.0
Benefits	\$7.9	\$1.2
Environmental	\$0.7	\$0.1
Transportation	\$6.0	\$0.6
Energy Use	\$1.1	\$0.1
Effects on Economy	\$0.2	\$0.4
Cost Savings and Benefits	\$15.2	\$2.0

Potential Analytical Enhancements

- Apply the SNHPC travel demand model to community development alternatives by incorporating land use (population and employment) assumptions
 - More accurate estimates of VMT and VHT impacts on amount and pattern of development
- Conduct a fiscal impact analysis to consider revenue impacts of commercial and residential development
- Add market demand assessments and risk analysis to account for future uncertainties
- Incorporate additional impact categories
 - Solid waste, water/sewer expansion, property value difference based on proximity to community centers, social factors (low-income housing, poverty)

The image features a complex abstract graphic design. It consists of several overlapping rectangular blocks of color. A large teal block on the left contains the text 'Providence Streetcar Core Connector Study'. To its right is a vertical yellow-green bar, followed by a grey block. Further right is a large teal block, and below it is a horizontal yellow-green bar. The bottom of the image is dominated by a wide, light grey block. The overall composition is clean and modern, using a limited color palette of teal, grey, and yellow-green.

Providence Streetcar
Core Connector Study

Proposed Streetcar Route



- Serves the most attractions, activity centers, existing businesses, cultural destinations, and neighborhoods while promoting future development
- Serves the most redevelopable/currently vacant land

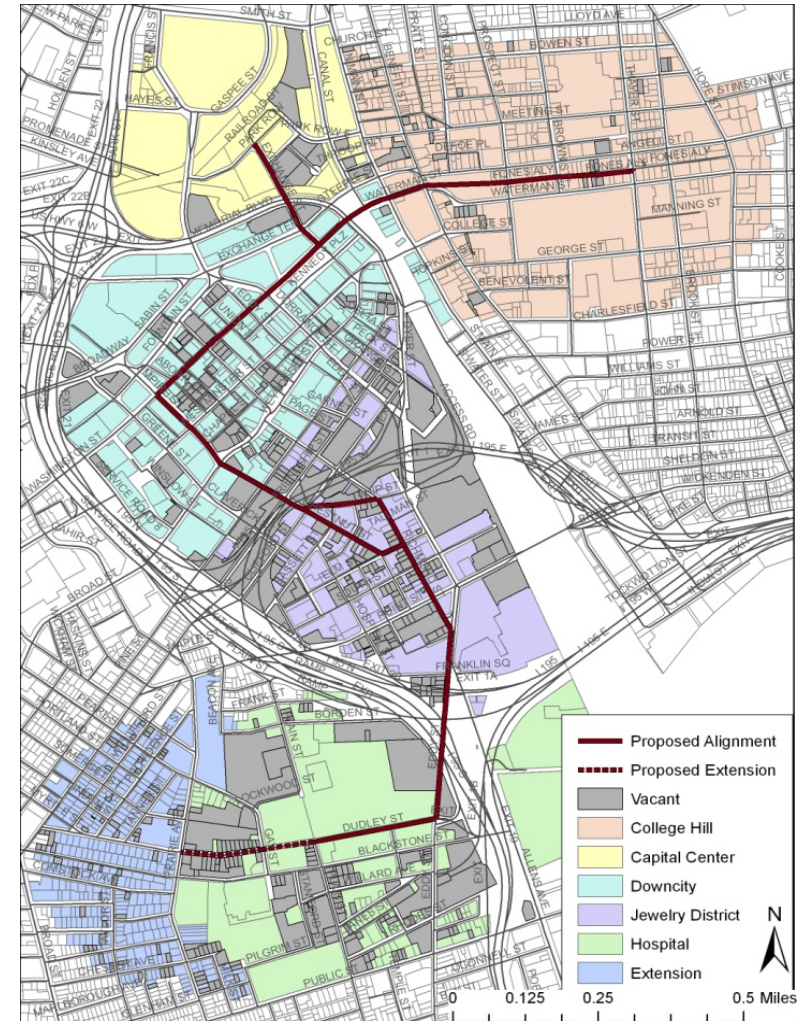
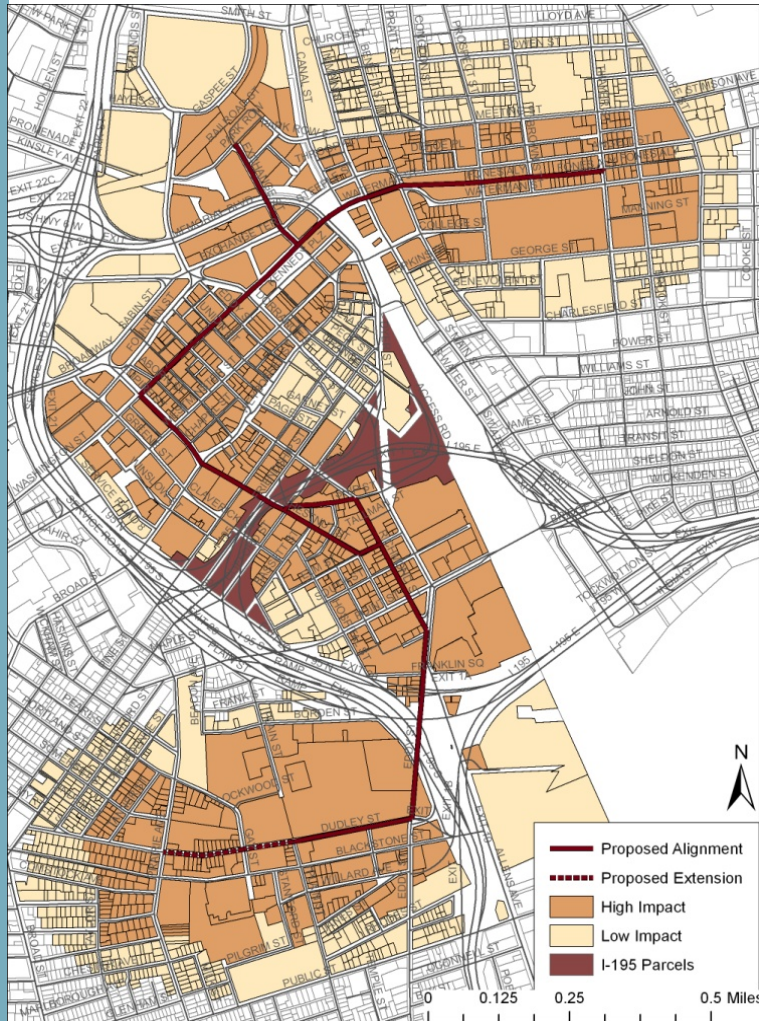
Framework for Economic Development Analysis



Purpose

- Measure potential economic development impact of a streetcar on City of Providence
 - Jobs, residents, investment, square feet of development
- Anticipated development benefits provide opportunities to consider value capture strategies to help fund streetcar
 - Develop a multi-year financial plan for construction, operations, and maintenance

Study Area for Development Impacts



Note: “Vacant” includes both “vacant” as defined by the tax assessor and “underutilized” (e.g., surface parking lots) as defined by the City of Providence.

Five Key Development Factors

1. Percent of vacant land likely to be developed because of the streetcar
2. Land use mix (residential, office, retail, institutional) of redevelopment – vacant / underutilized properties
3. Floor to Area Ratio (FAR) of redevelopment
4. Property value premium due to streetcar
5. Time to achieve full buildout

How Much Vacant Land Will Be Developed Due To The Streetcar

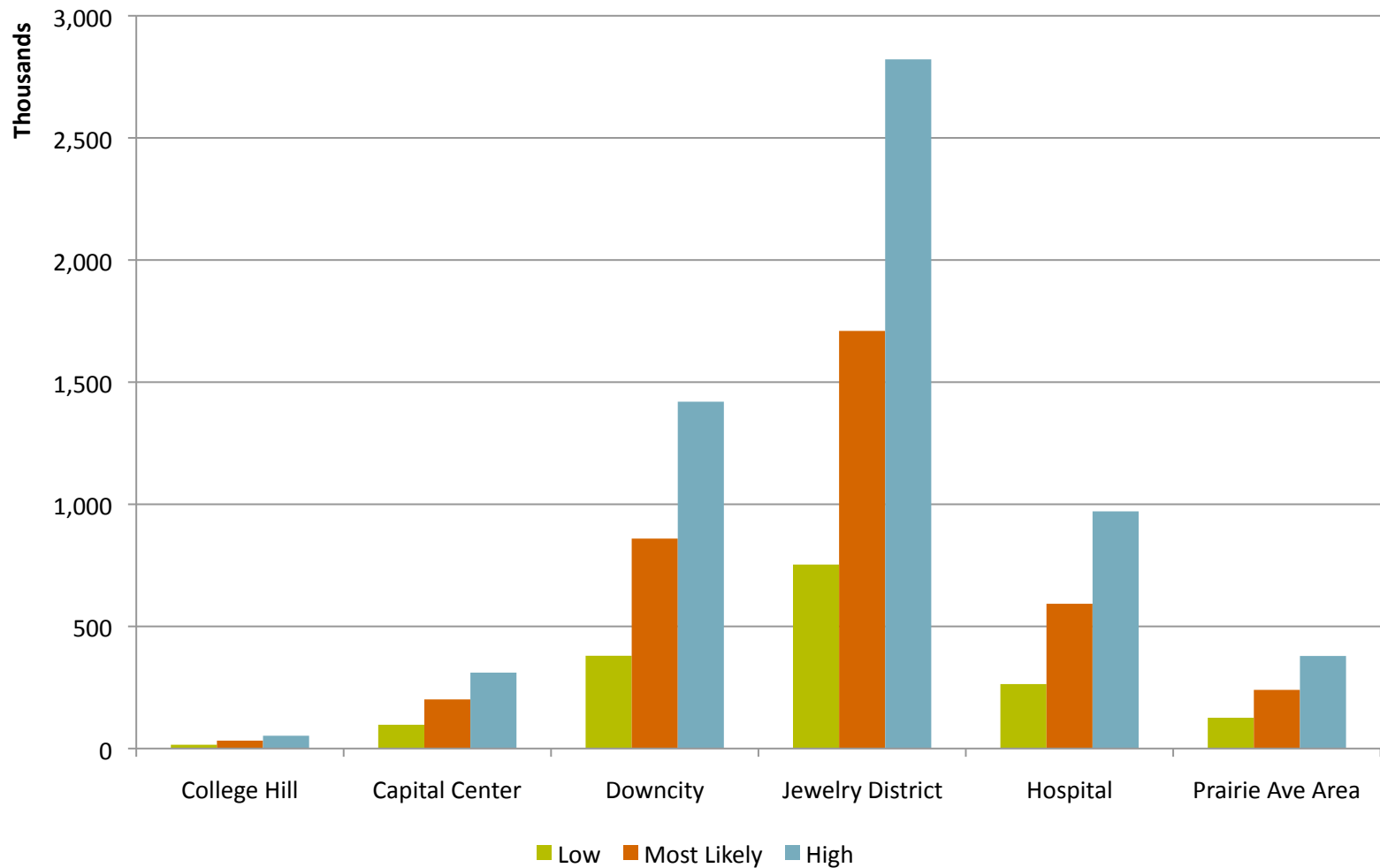
From 2010 to 2034

	High Impact	Low Impact	Baseline Development Growth
College Hill	10.0%	5.0%	10.03%
Capital Center	15.0%	7.5%	7.43%
Downtown	20.0%	10.0%	14.30%
Jewelry District	25.0%	12.5%	15.98%
Hospital	20.0%	10.0%	10.50%
Prairie Ave Area	20.0%	10.0%	7.41%

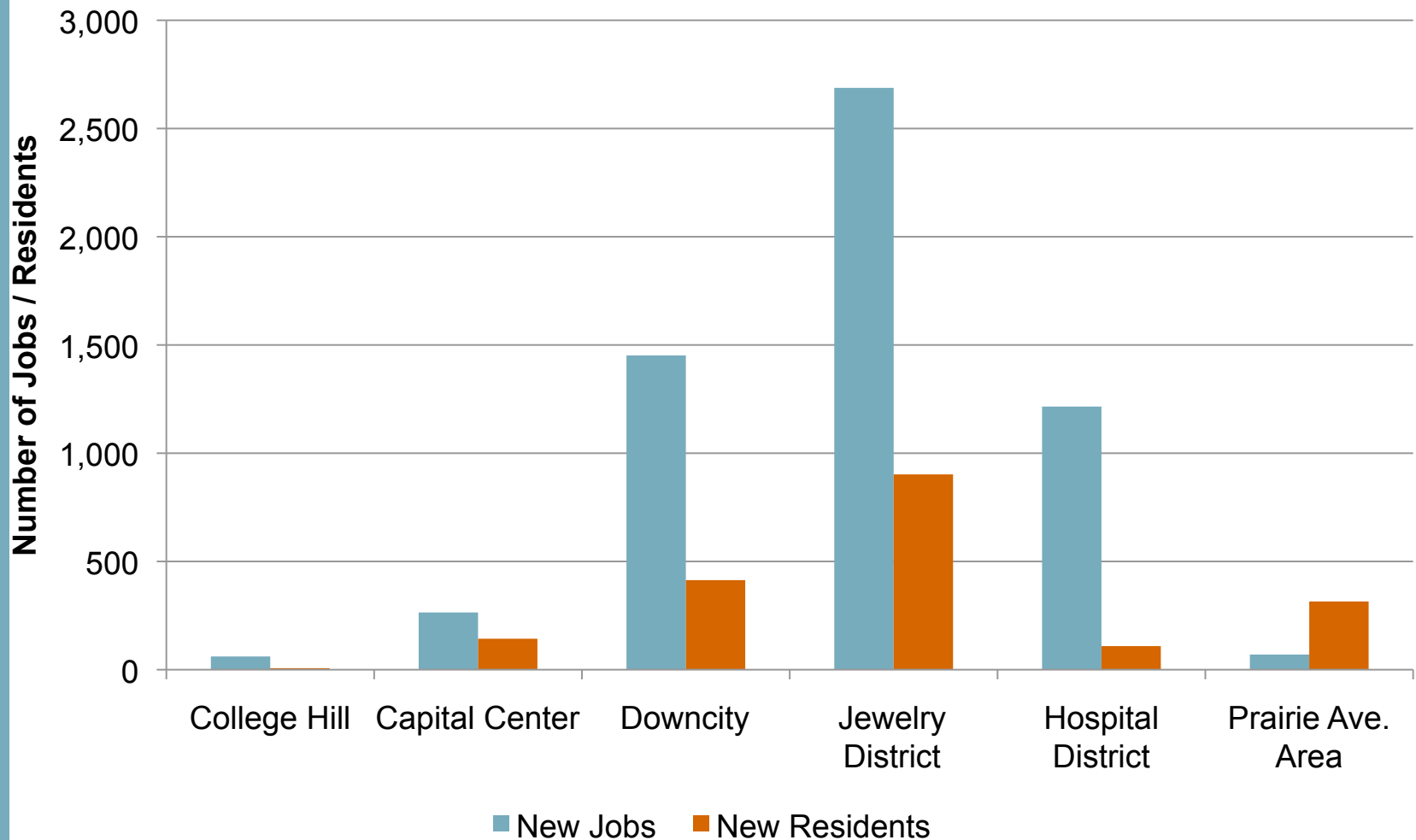
High Impact within 2-3 blocks of streetcar alignment – Low Impact within ¼ mile of streetcar; Rates based on Metro Transit Study and experience of other streetcar cities

Baseline development assumptions based on TAZ population and employment forecasts

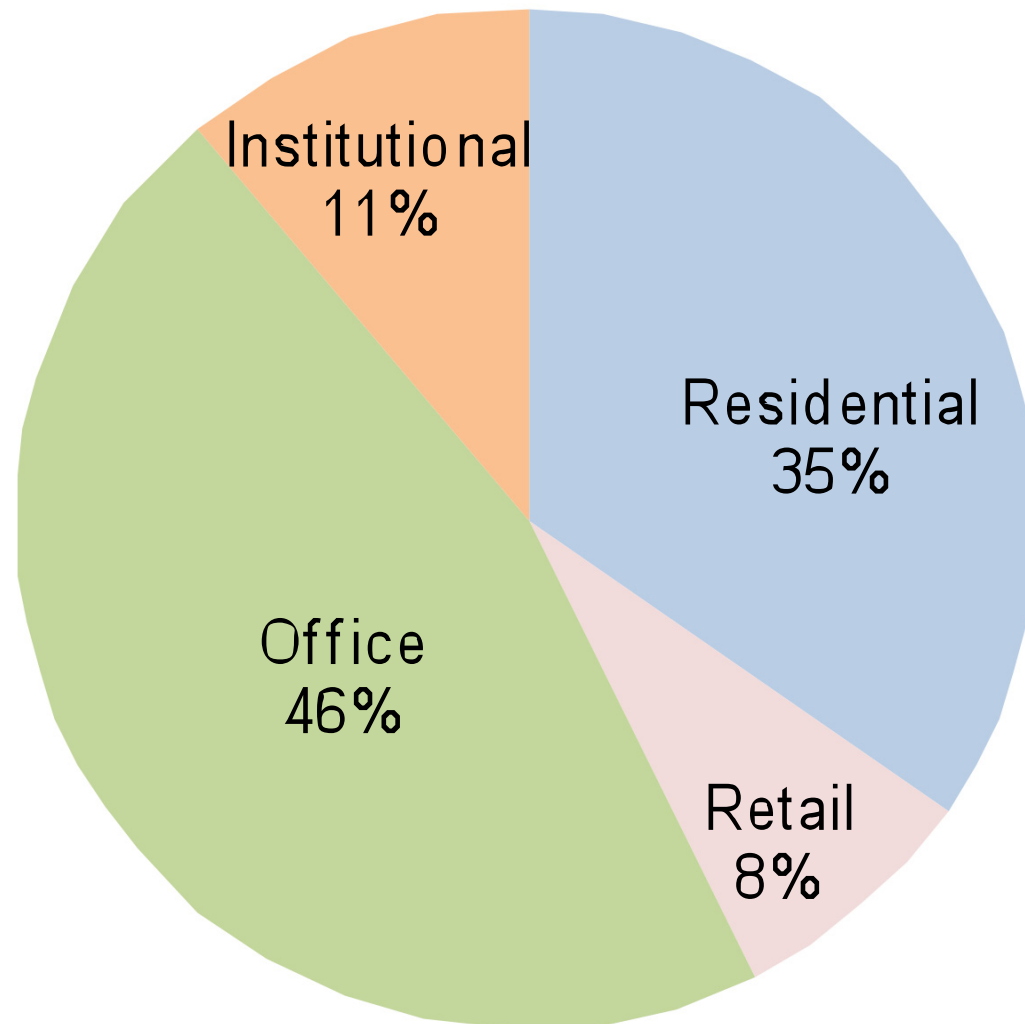
Range of Square Footage Attributable to Streetcar



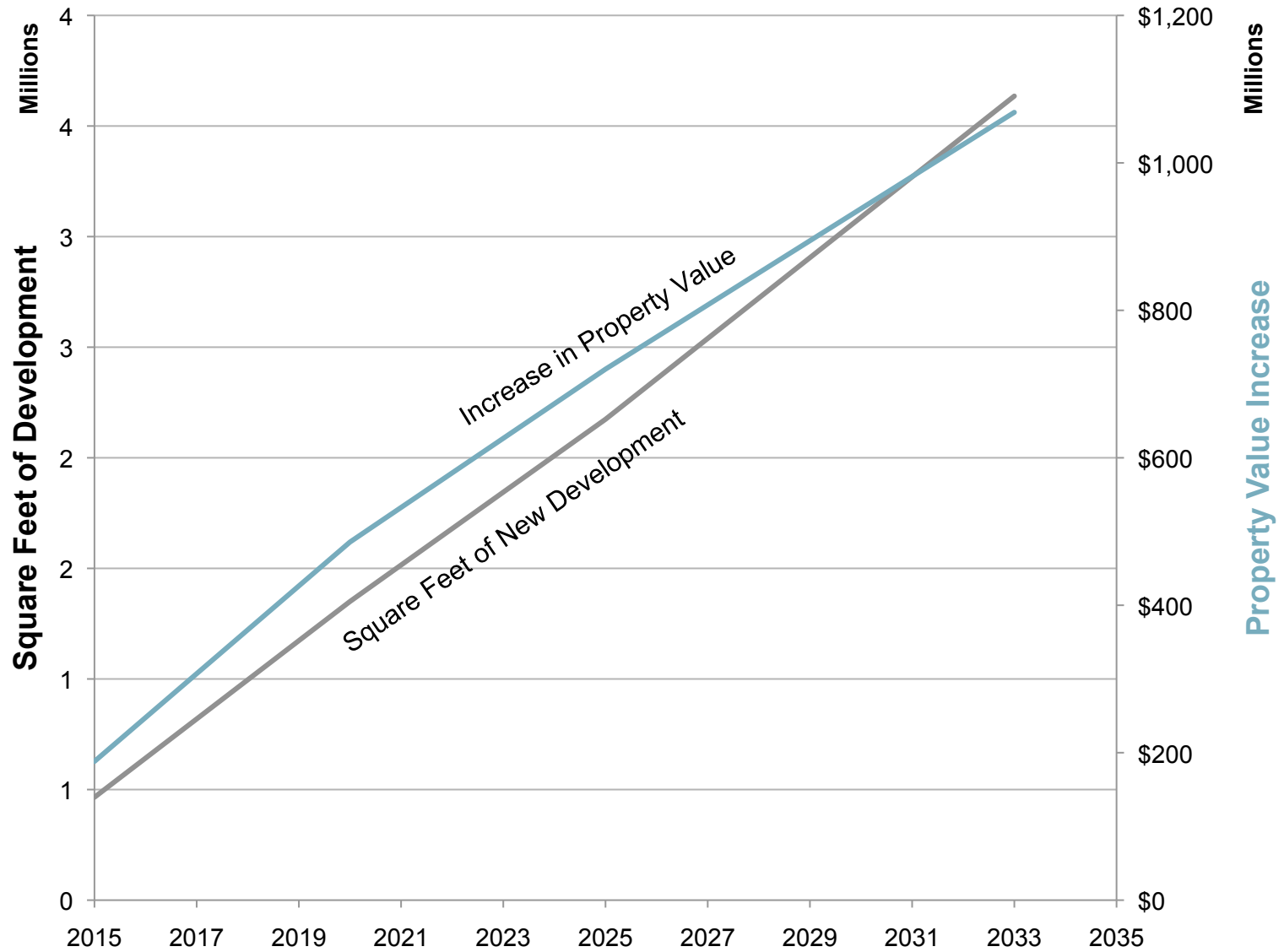
New Jobs and Residents Attributable to Streetcar (Full Buildout – 2033)



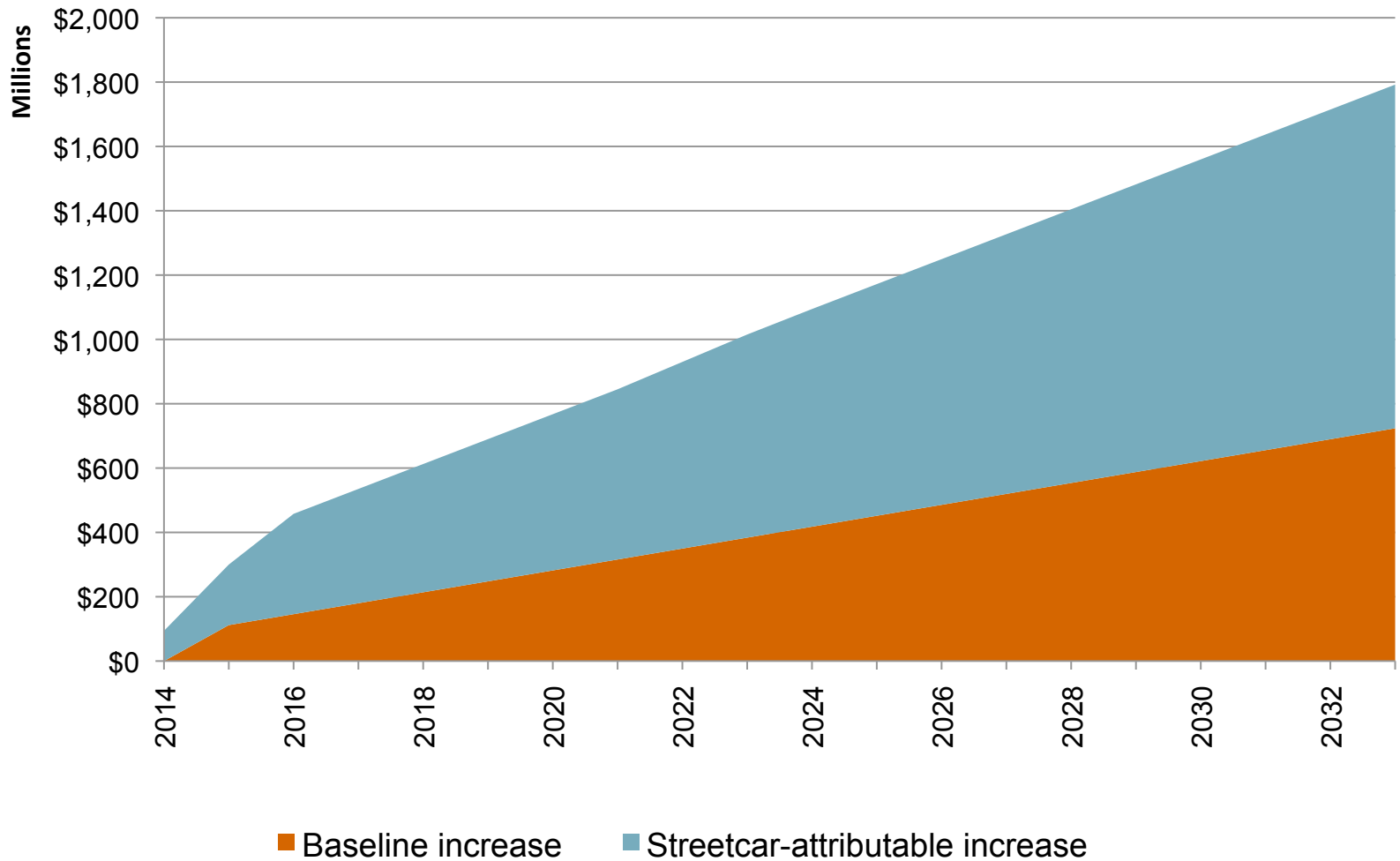
Land Use of Streetcar-Attributable Development



Streetcar-Attributable Development Over Time

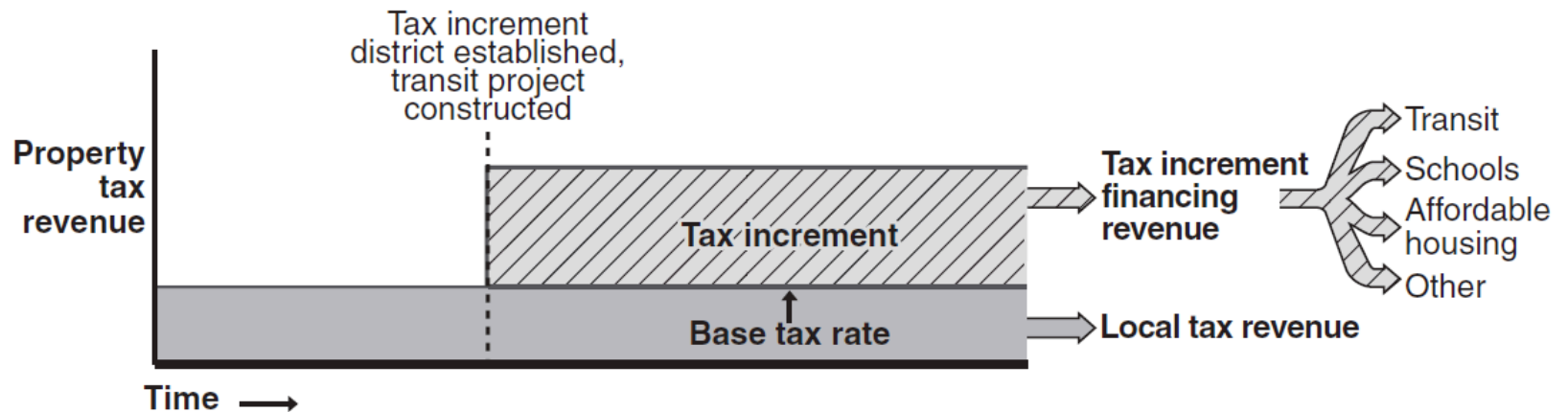


Increase in Property Value Due to New Development



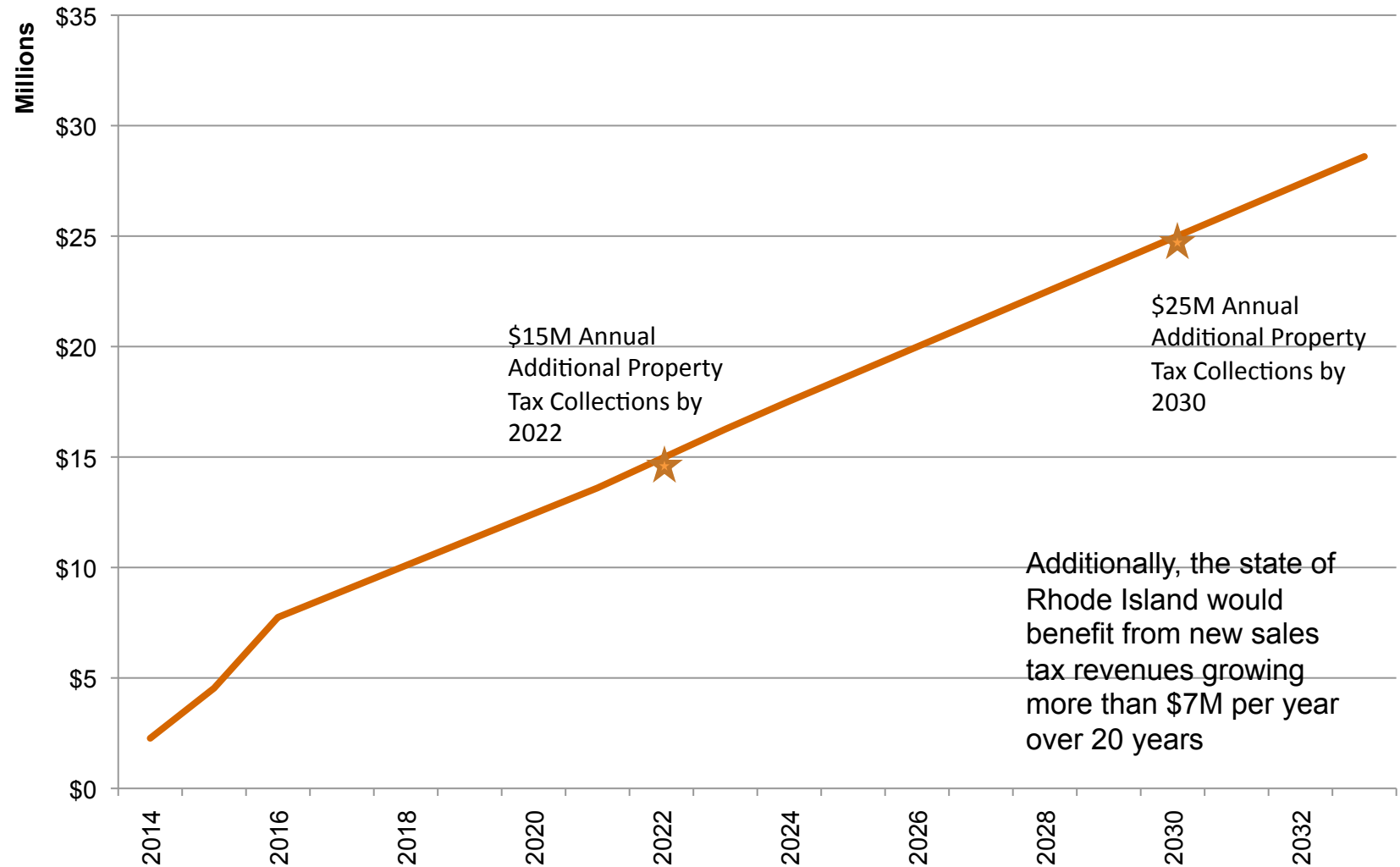
Tax Increment Financing

- Public financing technique used to encourage economic development by capturing the future tax benefits stemming from an infrastructure investment to pay for the present cost of those improvements as well as other activities.



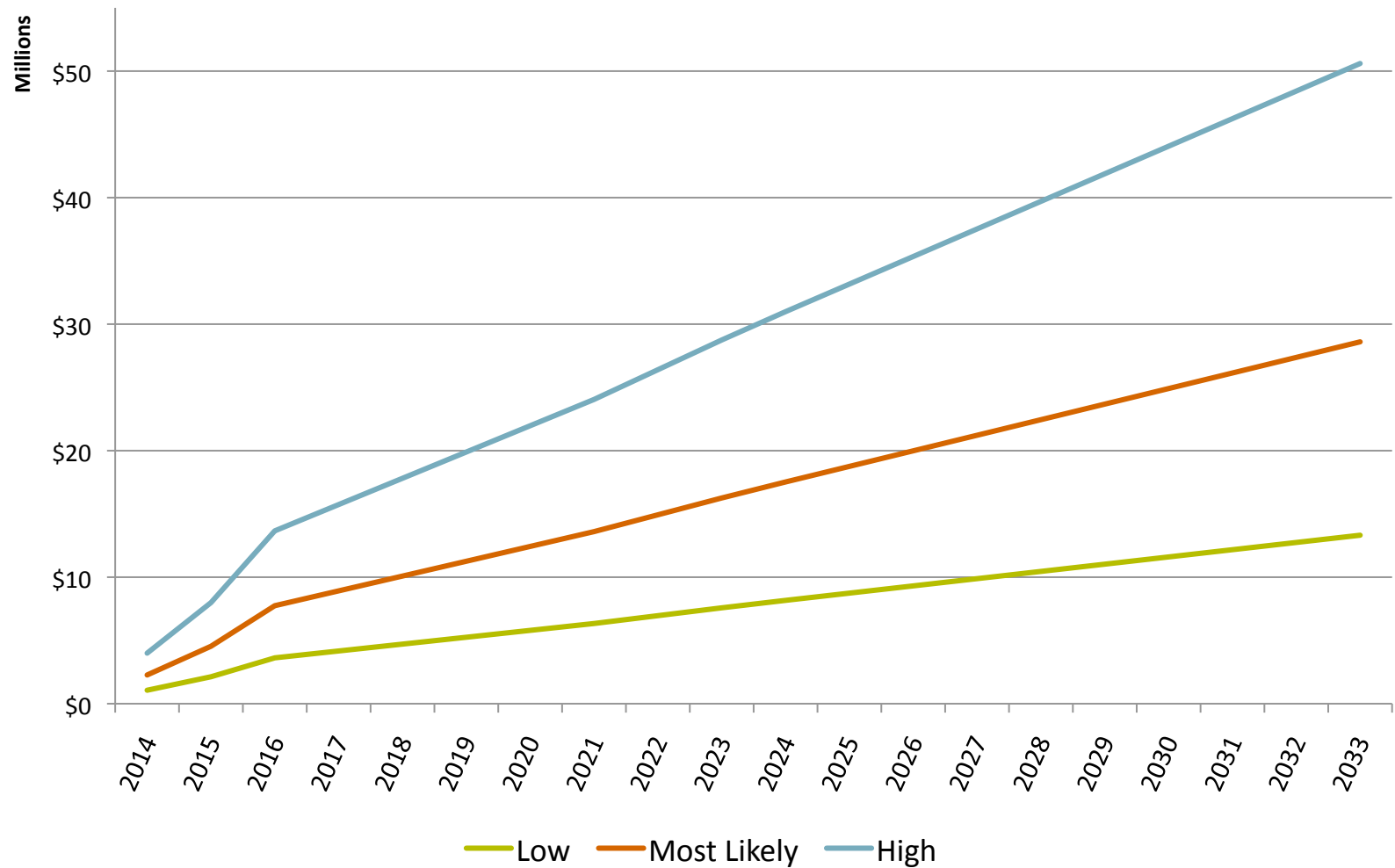
Source: U.S. Government Accountability Office Report 10-781, July 2010

Potential New Property Tax Revenue



Note: Assumes continuation of current tax rates

Potential New Property Tax Revenue – Risk Analysis Ranges



What Else Is Needed For Success?

- Integrated development policies to support higher densities and mixed use in the urban core
- Innovative parking policies and strategies to encourage transit as a viable mobility option
- Policies to encourage the development of vacant land in the streetcar zone for higher uses
- Establishment of a “baseline” for growth in order to implement a value capture finance strategy before streetcar-oriented development begins to occur

Thank you

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