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Economic Development and Highway Right-Sizing

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16. Abstract

The old "one-size-fits-all" approach to transportation divided communities and left them with gaps in existing transportation and infrastructure. Newer, context-sensitive solutions, like right-sizing, are an innovative approach to addressing this aging infrastructure. Instead of policies seeking only to appropriately match land use and transportation contexts on existing streets, right-sizing projects provide the opportunity to develop community-oriented transportation policies that promote safety, community well-being, and help the community achieve broader economic development goals.

The structure for right-sizing analysis can be broken into four steps, each associated with a decision or point of analysis necessary for communities to understand if and how they may benefit from right-sizing a transportation facility. Step 1 explores the desire or motivation for undertaking the project. Step 2 identifies potential traffic management strategies. Consideration may be given to shrinking the highway's footprint, improving multimodal connectivity, or diverting the traffic to another route or into a tunnel. Step 3 identifies potential economic development goals that, when combined with transportation policies targeting specific mechanisms that drive economic development, can help the right-sizing project induce favorable economic development impacts. Step 4, the implementation initiative, summarizes the results of the previous three steps and includes estimation of possible economic development impacts should the goals identified in Step 2 be realized.

The selection of the alternative will be context specific, will be different for each community, and involves balancing potential impacts, and negative externalities with community vision and neighborhood goals. Each community will choose to balance these impacts differently.

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Executive Summary

This paper synthesizes information on how communities make decisions about right-sizing travel facilities. It illustrates the opportunity right-sizing provides to step away from the old, "one-size-fits-all" approach to transportation infrastructure (a certain capacity equates to a certain facility type or prioritization of vehicle traffic over multimodal facilities), instead providing the opportunity to develop innovative, context-sensitive solutions that use transportation infrastructure to connect neighborhoods, promote public health and well-being, and create livable communities. Intended for use by a diverse audience including transportation professionals, partners, and decision makers, this document is applicable in any setting where projects seek to appropriately match land use and transportation contexts to enhance existing facilities.

Research and case studies identified four steps in the right-sizing analysis process: 1) the decision or motivation, 2) the traffic management strategy, 3) economic development opportunities, and 4) the implementation initiative. For clarity, each step is discussed individually, but in practice, great overlap exists as often these decisions are made concurrently and analyzed in relation to one another. Additionally, there is some flexibility regarding the order in which these analysis steps are conducted. Right-sizing projects are a context-sensitive solution formed with community input, with emphasis on the decisions and steps that best address the needs of the community.

Step 1: **Desire or Motivation for Change—**having expressed dissatisfaction with the current state, the community works together to identify community goals and establish a community vision for the future, and public and private support for the project builds indicating a need for action. Often, there is no single catalyst for change, but a combination of primary motives (e.g., obsolescence, damage and deterioration, and economic development and revitalization), evolving community vision, and a buildup of public and private support.

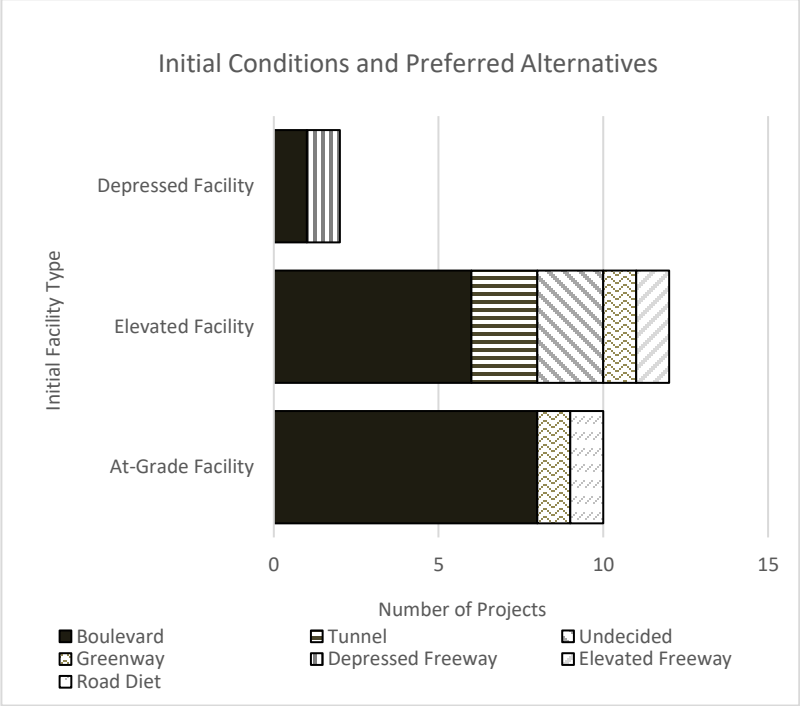

Figure 1. Proposed alternative by existing facility type.

Step 2: **Traffic Management Strategy**—alternatives to the existing facility are examined. Considerations include: whether to rebuild, rehabilitate, or remove the existing facility, whether to include multimodal improvements, and how to accommodate existing traffic, including freight traffic. Potential accommodations include rehabilitating the facility, removing and replacing it with a different facility type (e.g., boulevard, tunnel, etc.), or removing the facility and allowing the existing street grid to absorb traffic).

Of the cases examined, right-sizing projects were primarily undertaken by communities with elevated or at-grade facilities. Only two depressed facilities were right-sized and one of them remained a depressed facility, albeit with a smaller footprint.

With almost all projects electing to remove the facility, rather than rehabilitate or repair, boulevards were the most frequently identified alternative. In addition to improving neighborhood connectivity, boulevards allow for integration of sustainability and livability features into the community long-range transportation plan.

Step 3: **Economic Development Opportunities**—this step is integrated with the identification of the traffic management strategy and involves identifying economic development goals and implementing policies targeting mechanisms that drive economic development. These mechanisms include: business travel costs, business market reach, personal travel costs, job access, and quality of life. Often, these policies include encouraging commercial development, creating public spaces, requiring inclusion of affordable housing units, and other policies aimed at helping make these communities more livable, walkable, bike-able, and desirable to businesses and residents alike. Projects frequently mentioned developing reclaimed land and revitalization initiatives as economic development goals for right-sizing projects.

Table 1. Potential economic development goals and impacts.

Category	Development Goal or Impact
Land	Commercial Development; Property Value; Public Space
Safety	Road Safety
Revitalization	Gentrification and Displacement; Employment Opportunities; Livability

Different traffic management strategies allow for realization of different economic development goals or impacts. Some communities may envision building a stronger community identity and may prioritize revitalization and livability improvements. In these instances, emphasis would be on creating public spaces and increasing connectivity within the community.

Reclaimed land and improved connectivity make the area more attractive to business development; meanwhile, livability, walkability, and increased access to jobs help draw new residents and retain existing residents, further contributing to the development level of the community. Boulevards allow for increased connectivity and reclaimed land while providing the opportunity for traffic-calming measures and improved multimodal facilities. They support a variety of economic development goals, which is likely why they are the most frequently

selected traffic management strategy. As a community-oriented, context-sensitive solution, it is important to let the needs and goals of the community drive the selection of the traffic management strategy and economic development goals.

Step 4: **Implementation Initiative**—this step involves organization of information gleaned in earlier steps, which helps move the project from the concept stages to the planning/pre-construction stages. This step includes planning studies such as Planning and Environmental Linkages (PELs); formalization of required National Environmental Policy Act (NEPA) scoping documents—Environmental Assessment (EA), draft Environmental Impact Statement (EIS), Record of Decision; and also involves estimating the impact to the community should some (or all) of these economic development goals be realized.

Table 2. Estimating economic development impacts.

Methodology	What economic development impact could it measure?
Input-Output Models	Impacts of Construction Spending
Freight Analysis Framework	Economic relationships of a region by various transportation mode, truck corridors of economic importance, major commodities and future growth scenario
MPO Transportation Models	Road Safety, Revitalization and Livability
Property Value Changes	Public Space, Commercial Development, Property Value
Case Studies	Road Safety, Public Space, Commercial Development, Property Value, Revitalization and Livability, Jobs, Gentrification and Displacement, Environmental Justice
Public Involvement	Road Safety, Public Space, Commercial Development, Property Value, Revitalization and Livability, Jobs, Gentrification and Displacement, Environmental Justice

Estimating the economic development impacts of a proposed right-sizing project can help distinguish between the impacts of different traffic management strategies and may help identify potential negative externalities needing mitigation strategies. The selection of the alternative will be different for each community. It requires balancing impacts (improved economic development prospects and connectivity) with potential negative externalities (such as gentrification and displacement) with existing neighborhood character and the community vision for the future. This balance is achieved both by analyzing potential economic development impacts and changes in connectivity and travel time and by fostering strong agency-community cooperation. Right-sizing is a context-sensitive solution to a community-oriented problem and by including the community in the process, infrastructure improvements can improve more than just connectivity, but the livability and well-being of the community as well.

1. Introduction

Right-sizing projects provide communities with the opportunity to improve internal connectivity by better matching land use and transportation needs in existing travel facilities. Projects such as the Central Artery in Boston and the Alaskan Way Viaduct in Seattle replaced elevated freeways with tunnels while San Francisco's Embarcadero Freeway and Chattanooga's Riverfront Parkway were replaced with multimodal boulevards and improved public spaces. At its most basic level, right-sizing projects involve adjusting travel facilities to reflect changes in demand, which does not necessarily mean removing the facility completely.

Right-Sizing Defined

As defined by the FHWA, right-sizing projects are those "aimed at matching land use and transportation contexts appropriately on existing streets."[1] Typical examples of right-sizing are elevated urban expressways being replaced by at-grade boulevards with traffic signals and improved multimodal facilities. Also conforming to this definition of right-sizing are "road-diets," which are defined by the FHWA as "removing travel lanes from a roadway and utilizing the space for other uses and travel modes."[2]

Right-sizing projects are about more than just removing the travel facility. The most effective right-sizing projects will rebuild, rehabilitate, or remove travel facilities in a way that balances regional desires for connectivity with changing community attitudes toward urban land use and desires for social and economic connectivity.

1.1 Report Structure

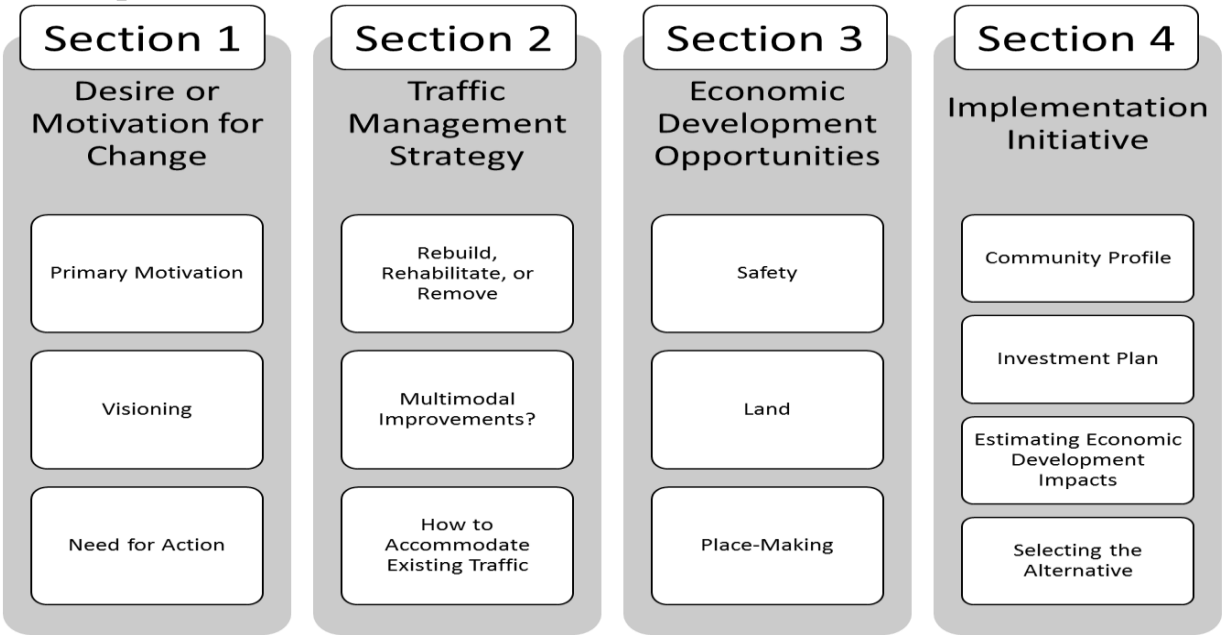

Figure 2. Structure for right-sizing analysis.

[1] Federal Highway Administration. Livability in Transportation Guidebook – Planning Approaches that Promote Livability. 2016.
[2] Federal Highway Administration. Livability in Transportation Guidebook – Planning Approaches that Promote Livability. 2016.

The report is divided into four sections, each describing a necessary decision or analysis step for communities considering undertaking a right-sizing project. Together, they provide the information necessary to select an alternative to the existing facility through the National Environmental Policy Act (NEPA), and determine if and how a community may benefit from a proposed right-sizing project. Figure 2 presents the structure of the report and provides an overview of the decisions and actions required during each phase of the analysis.

Section 1: the **desire or motivation for change** expresses community dissatisfaction with the current state and allows the community to envision the role they would like transportation to fill in their community.

Section 2: based on this community vision of the future, a **traffic management strategy** (or strategies) is (are) identified. The use of community-oriented transportation planning strategies ensures recognition of community goals and vision such that the facility meets not only the connectivity needs of the community, but also contributes to the overall health, happiness, and well-being of the community both now and in the future.

Section 3: the type of transportation management strategy selected informs potential **economic development opportunities** of the project. This phase identifies economic development goals for the project and community and identifies policies to help achieve these goals. These policies target the underlying mechanisms that drive economic growth, including business travel costs, business market reach, personal travel costs, job access, and quality of life.

Section 4: the **implementation initiative** organizes information from the earlier sections, which helps move the project from the concept stage to the planning/preconstruction stage. The ***community profile*** specifies the existing conditions of the community and helps place the community somewhere on the spectrum for potential economic development. The existing conditions provide a starting point for **estimating the potential economic development impacts** and help clarify the **investment plan**, whether the burden will be on public funds or whether there is existing private investment interest in the project area.

Each section builds on the previous, providing background information, best practices, and examples (drawn from case studies), highlighting examples of the necessary decisions or analysis steps. For clarity, these sections are discussed individually, though they are much more interconnected than Figure 2 suggests. Section 1 activities take place during the development of the long-range transportation plan and help identify if a right-sizing project may align with community goals and visions for the future. However, dissatisfaction and community visioning sessions may also contribute to identification of potential traffic management strategies or broader economic development goals for the community. These may be further examined in the steps described in sections 2–4.

The steps in sections 2–4 can occur any time after a community elects to consider undertaking a right-sizing project, but these steps take on a more formal role during the NEPA scoping process. Traffic management strategies and economic development goals are often developed concurrently. The types of economic development goals may impact what traffic management strategies are considered or the type of proposed alternatives under consideration may dictate the types of economic development impacts that can be anticipated. The implementation initiative draws on the results of steps described in sections 2–3 to formalize the analysis with planning studies and NEPA scoping deliverables such as the draft and final Environmental Impact Statement (EIS) as well as a record of decision.

Public involvement, discussed specifically in section 4, is a common theme throughout. Visioning helps define community goals and the role the community envisions transportation playing. Public involvement helps call attention to nuances not understood or recognized by those from outside the community and these insights help develop proposed alternatives and economic development goals based on the context-specific needs of the community. Finally, public outreach helps inform understandings of the impact of these economic development goals, should they be realized. The prevalence of public involvement in each section of right-sizing analysis underscores that right-sizing is a context-sensitive solution to a community-oriented problem and that by including the community in the process, infrastructure improvements can improve more than just connectivity, but the livability and well-being of the community as well.

1.1.1 Case Studies

The case studies represent a variety of projects ranging from road diets to rebuilt freeways to large-scale boulevard replacements. Figure 3 summarizes existing facility types. Of the twenty-four cases examined, half began as elevated facilities, which includes: elevated expressways, elevated freeways, and elevated highways. Of the remaining twelve cases, ten began as at-grade facilities, which includes: expressways, freeways, highways, and the street grid. The final two projects began as depressed facilities—a depressed expressway and a depressed freeway.

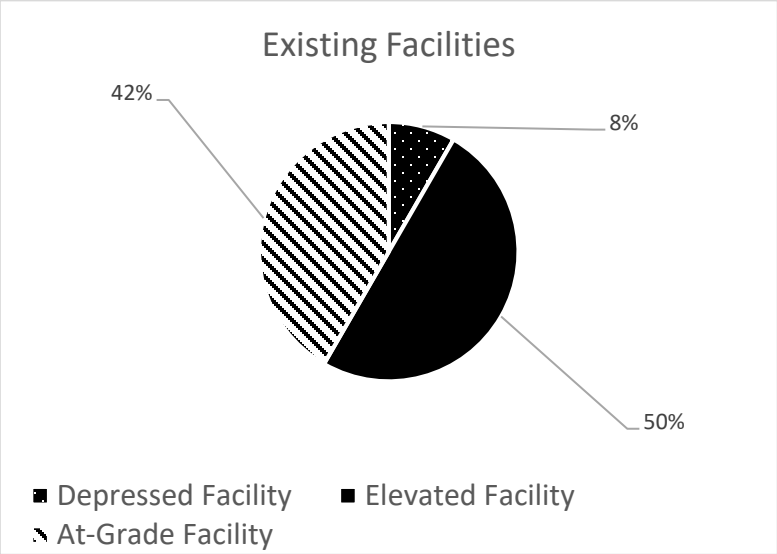

Figure 3. Chart. Existing facility types.

These case studies were chosen based on the amount of publically available information, the existence of planning documents (for some), and their use of context specific community-oriented transportation plans. Five projects had EISs available online and economic development goals and methodologies were extracted from those as well as other publically available information including newspaper articles, blog posts, and other media. Most EISs did not quantify anticipated benefits beyond multipliers and/or benefit-cost analysis, neither of which are particularly useful for estimating long-term economic development benefits. Eleven projects had no planning documents available. For the fifteen included case studies, each demonstrates a certain decision or analysis step described in the structure for right-sizing analysis and are offset from the text using callout boxes.

Table 3 provides a list of all case studies discussed and indicates the specific section(s) and topic(s) they highlight. For a full list of cases considered for inclusion and a brief community profile on each, see Table 7 (located in the Appendix).

Table 3. Case studies organized by section.

Case Study Topics	Case Study Location and Facility Name
Section 1: Desire for Motivation or Change	**Various**
Primary Motivation: Obsolescence	Akron, Ohio - Innerbelt
Primary Motivation: Damage and Deterioration	Milwaukee, Wisconsin - Park East Freeway
Primary Motivation: Damage and Deterioration	Toronto, Ontario, Canada - Gardiner Expressway
Primary Motivation: Damage and Deterioration	San Francisco, California - Embarcadero Freeway
Primary Motivation: Damage and Deterioration	New York City, New York - West Side Highway
Primary Motive: Economic Development and Revitalization	Oakland, California - Cypress Freeway
Primary Motive: Neighborhood Connectivity	Buffalo, New York - Scajaquada Highway
Visioning	Chattanooga, Tennessee - Riverfront Parkway
Need for Action	Seoul, Korea - Cheonggyecheon Elevated Expressway
Section 3: Economic Development Opportunities	**Various**
Land	Seoul, Korea - Cheonggyecheon Elevated Expressway
Land	San Francisco, California - Central Freeway
Safety	Indianapolis, Indiana - Indianapolis Cultural Trail
Revitalization	San Francisco, California - Central Freeway
Revitalization	New Orleans, Louisiana - Claiborne Expressway
Section 4: Implementation Initiative	**Various**
Methodology for Estimation: Input - Output Models	San Francisco, California - Embarcadero Freeway
Methodology for Estimation: Input - Output Models	Seattle, Washington - Alaskan Way Viaduct
Methodology for Estimation: MPO Transportation Demand Models	San Francisco, California - Embarcadero Freeway
Methodology for Estimation: Property Value Changes	San Francisco, California - Embarcadero Freeway
Methodology for Estimation: Property Value Changes	Seattle, Washington - Alaskan Way Viaduct
Methodology for Estimation: Property Value Changes	Syracuse, New York - I-81 Viaduct
Methodology for Estimation: Case Studies	Syracuse, New York - I-81 Viaduct
Methodology for Estimation: Public Involvement	Bronx, New York - Sheridan Expressway
Selection of the Preferred Alternative	Oakland, California - Cypress Freeway

2. Desire or Motivation for Change

The stimulus for undertaking a project to redesign or remove an existing facility is a combination of dissatisfaction with the current state and the opportunity created by a need to rebuild, rehabilitate, or remove the facility. Often, it is difficult to identify a single catalyst. Figure 4 suggests three components essential to motivating right-sizing projects.

The primary motive is an expression of dissatisfaction with the current facility and helps start a community dialogue about right-sizing the facility. Neighborhood visioning sessions help clarify community goals and help agencies gain insight into how the facility might better align with community character and goals. Visioning sessions help build public support for right-sizing projects, which, along with political support, discussed in the *need for action section*, is the final component needed to help move the project forward.

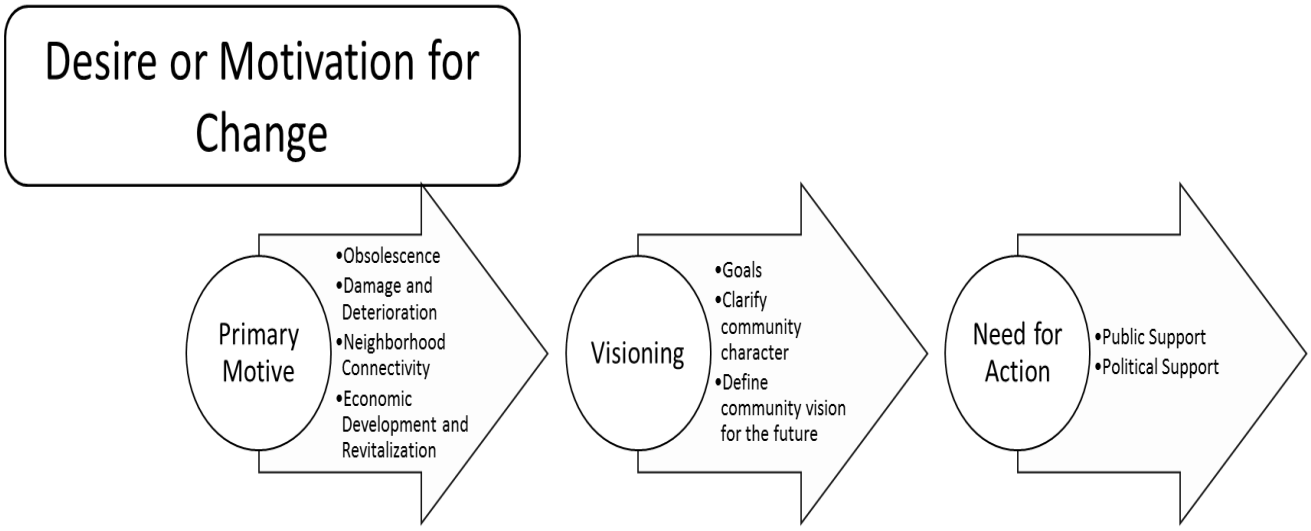

Figure 4. Chart. Factors motivating change.

2.1 Primary Motives

In some instances, the catalyst for change is public concern, with community activists first calling for removal. Change can be the result of new ideas in urban planning, commissioned transportation studies that identify deficiencies, or safety concerns in the transportation network. Other times, communities may come to view certain highways as blocking or hindering access to a desirable resource such as a waterfront or park area or as inviting negative qualities.

Obsolescence: Sometimes a facility is no longer needed or is in the wrong place to retain a major place in the transportation network. The mismatch between travel infrastructure supplied, neighborhood vision, and community mobility demands is one motivation for a right-sizing project. A vibrant and livable urban core requires multimodal connectivity and an obsolete travel corridor provides an opportunity to work toward achieving this.

Dealing with Obsolescence - the Akron Innerbelt

Over the past 50 years, some former manufacturing hubs, like Akron, have experienced population decline, abandonment, and disinvestment. Fewer jobs resulted in increasing vacancy in residential neighborhoods and transportation facilities overbuilt for the amount of traffic they carry. Faced with an infrastructure built for 290,000 in a city with a population of less than 198,000, Akron is overserved by its transportation infrastructure. Carrying just 17,760 vehicles per day, the Innerbelt serves only a tenth of what the six-lane road was built to handle. Akron views its challenge as making smarter, more efficient, and more effective use of the infrastructure it already has, and this includes removing the Innerbelt.

The hope is to balance potential commercial demand with the desire to provide amenities to downtown residents that Akron hopes to attract and retain. Akron has an abundance of inexpensive office space available in the downtown core, selling for $8 a square foot, the same as commercial warehouse space.[3] Planners have decided to approach the reclaimed land (albeit only temporarily) from the perspective of improving available downtown amenities with a park. City leaders support ideas to build a mountain bike park, an adult playground, or other green space, but will first create a temporary two-acre green space lasting about three months. What will happen to the space after is still up for discussion.

The mismatch between travel infrastructure supplied, neighborhood vision, and community mobility demands is one motivation for a right-sizing project. A vibrant and livable urban core requires multimodal connectivity, and right-sizing an obsolete travel facility provides an opportunity to incorporate livability principles into the long-range transportation plan.

For more information on Akron's plans to build a more vibrant and livable downtown, see: https://www.transportation.gov/sites/dot.gov/files/docs/OH%20Akron.pdf

Damage and Deterioration: As roadways near the end of their useful lives, the community must make a decision to repair, replace, or relocate the aging facility. Avoidance of maintenance costs is not sufficient justification for downgrading the functional class of a facility, but when a roadway nears the end of its useful life, it gives the community the opportunity to reexamine existing infrastructure and repair, replace, or relocate based on what best aligns with community goals, character, and connectivity needs.

[3] Shingler, Dan. "When Akron's Innerbelt is gone, what comes next?."2016.

Park East Freeway Reaches the End of its Useful Life - Milwaukee

One instance of an asset requiring costly repairs was the Park East Freeway in Milwaukee. Repairs needed to maintain the Park East Freeway were estimated at $100 million; the cost to tear down the highway was estimated at $25 million. The city removed the elevated parkway and replaced it with a 6-lane boulevard, freeing up 26 acres of land and allocating 28 city blocks for mixed-use development.

The six-lane, landscaped avenue, provides greater access to downtown Milwaukee through improved connections to the street grid. Building upon the earlier Riverwalk System along the Milwaukee Riverfront, the project leveraged earlier successful redevelopment projects with a plan for economic revitalization of the downtown/riverfront. This combination helped spur additional economic growth in the region by encouraging economic development, redevelopment of vacant properties, and increases in property values and tax revenues, all making the facility more appealing to developers.

For additional information on how removing the aging Park East facility best aligned with community goals and character, see:
http://city.milwaukee.gov/Projects/ParkEastredevelopment.htm#.Wsp-gy7wbIU

The Gardiner Expressway: Deteriorating and Dividing a City and Its Waterfront - Toronto

There is little consensus on how to approach right-sizing Toronto's Gardiner Expressway. Built with a structural design flaw causing spalling,[4] the Gardiner Expressway separates Toronto from its waterfront and is a safety hazard. Part of the difficulty in selecting an alternative is the inability to consider a surface replacement. Neighborhoods have encroached upon the structure leaving little space to build new roads, support detours, or store construction materials.

In 2014, Mayor John Tory proposed a "hybrid" solution combining repairs with a partial tear-down that would leave most of the road in place. Although estimates of the hybrid option are almost double that of removal ($919m versus $461m in 2013 Canadian dollars), Tory prioritized maintaining traffic speeds over decreasing costs by removing the elevated highway. [5] While most suburban ward councilors approved the hybrid option, all of Toronto's downtown city councilors voted to tear down the expressway.

The *Gardiner Expressway Environmental Assessment* functioned similarly to an EIS, and helped planners identify and recommend an alternative. Projects were evaluated through multiple lenses (transportation, urban design, environment, and economic), which provided the EA with structure and focused the analysis of the proposed alternatives. Still awaiting final approval, the alternative maintains portions of the existing elevated expressway, relocates a connector, removes several ramps, and widens a bridge.

More information on the Gardiner Expressway and the planning process can be found here:
https://waterfrontoronto.ca/nbe/portal/waterfront/Home/waterfronthome/projects/gardiner+expressway+ea/gardiner+east+ea

Deterioration necessitates that these travel facilities be repaired, replaced, or relocated in some capacity, but for facilities destroyed by man-made or natural disasters, there is a unique opportunity for communities to experience the traffic impacts of removing facilities before committing to their complete removal.

Loma Prieta Earthquake Destroys the Embarcadero: Repair, Replace, or Relocate? – San Francisco

With traffic reaching well over 100,000 vehicles per day, merchants believed the Embarcadero Freeway essential to bringing customers and commuters into the city. Residents feared its removal would result in traffic gridlock. [6] The 1989 Loma Prieta earthquake destroyed portions of the elevated Embarcadero Freeway and, while there was a temporary increase in traffic congestion directly after its closure, the predicted extreme gridlock never occurred. Some drivers switched to alternate routes along the street grid while others opted for public transit.

Due to the damage, demolition of the freeway had to take place quickly, but removal was not enough to revitalize the waterfront. In 1990, the Board of Supervisors narrowly passed a resolution proposing study of a surface level boulevard and an underground freeway. The challenge in redeveloping this space was the excessive width of the footprint of the former Embarcadero freeway, but the final decision was a "complete street." Now, the Embarcadero is a multi-use boulevard with space for auto traffic, a streetcar, bike lanes, and pedestrians. The boulevard has two banks of thoroughfare traffic, three lanes in each direction, a streetcar line down the center, and a large pedestrian walking path along the waterfront.

Additional information on the Embarcadero Freeway right-sizing project can be found in the project EIS, https://hdl.handle.net/2027/ien.35556030111942

[4] Spalling is caused when road salt and water are able to seep into concrete. The salty water rusts the steel reinforcing bars causing them to expand. This expansion cracks the concrete, these cracks are exacerbated by the freezing and thawing that occurs in the harsh Toronto winter and chunks begin breaking off.

[5] Jaffe, Eric. "Why Toronto Should Tear Down Its Urban Expressway." (2015)

[6] Napolitan, Francesca. "Shifting Urban Priorities: The Removal of Inner City Freeways in the United States." 2007.

Man-Made Disaster Destroys the West Side Highway: Repair, Replace, or Relocate? - Manhattan

Running through the New York City urban core and along the Hudson River waterfront, the West Side Highway closed in 1973 after a portion of the highway collapsed under the weight of a truck. The sudden closure presented a unique opportunity, similar to other travel facilities damaged by natural disasters, because traffic had no choice but to adapt. The fear was that the forced diversions would congest city streets, but the Chief Engineer of NYCDOT, Sam Schwartz, put traffic counters across avenues to measure the diversions. Vehicles diverted to FDR Drive and to West Side avenues, but the network had the capacity to handle it and there were no noticeable impacts to traffic. The street grid was able to seamlessly absorb the traffic—West Side Highway didn't really need to be rebuilt. What replaced it, a bicycle path and urban waterfront park, added much-needed and desired public amenities to the community.[7]

Additional information on the West Side Highway destruction, proposed redevelopment plans, and the final decision to remove the highway can be found here: http://www.preservenet.com/freeways/FreewaysWestSide.html

Economic Development and Revitalization: Economic development seeks to stimulate investment in locations whose access has been increased by transportation improvements. Right-sizing can be seen as a rebalancing between demands of an area overserved for traffic demands and the supply of infrastructure. One component of these economic development efforts involves revitalizing the local community. In this context, revitalization refers to restoring a city's economy to previous levels, providing opportunities to disadvantaged populations, and improving physical access.

[7] Simek, Peter. "What Other Cities Learned." 2014.

Building Economic Development Goals into the Proposed Alternative—Cypress Freeway and the Cypress/Mandela Training Center – San Francisco

Built in the 1950s, the Cypress Freeway connected Alameda County to downtown San Francisco and the Oakland waterfront. When the Loma Prieta earthquake struck in 1989, the freeway was destroyed. This created an opportunity for dialogue over how and where to reconstruct the freeway.

Initially, Caltrans sought to rebuild the freeway in the same footprint as the destroyed Cypress, but the Citizens Emergency Relief Team (CERT) members used community activism as well as the language and symbolism of environmental justice to persuade Caltrans that the freeway reconstruction needed to be approached as more than just a transportation project. For Caltrans, the primary goal was re-establishing connectivity within the East Bay's freeway network. For West Oakland, the project provided the opportunity for economic development, community revitalization, and to address environmental justice concerns of community residents.

Beyond the transportation impacts, the Cypress Freeway right-sizing project had policies in place to concentrate construction spending in the community and created long-term employment impacts with its creation of the Cypress/Mandela Training Center. The *Freeway Performance Agreement* put policies in place so that local residents and businesses would share in the construction spending benefits, the jobs, and the contracts generated by the project. The agreement set goals of: 35 percent Disadvantaged Business Enterprise (DBE)[8] participation, 20 percent Local Business Enterprise (LBE)[9] participation, and 45 percent employment of local residents, minorities, and women on a craft-by-craft basis by hours of employment.[10] In an attempt to meet the goal of using a local workforce, the Cypress/Mandela Training Center was established with support from Caltrans. Initially, the Center provided West Oakland residents with the training and skills necessary to be included in the freeway reconstruction project. Sixty-five of its graduates were employed on the Cypress Freeway Replacement project and the Center has since expanded its curriculum and has over 1,400 graduates with an 85-90 percent placement rate.

For additional information on the economic development considerations built into the Cypress Freeway right-sizing project, see:
https://ntlrepository.blob.core.windows.net/lib/17000/17800/17843/PB2001104729.pdf

[8] DBE businesses are owned by women and minorities.
[9] LBE businesses are located within the City of Oakland.
[10] *Project Planning, Development, Right of Way; Public Involvement; Mitigation and Enhancement Activities.* "Cypress Freeway Replacement Project, California Department of Transportation." 2001.

Neighborhood Connectivity: Issues of physical access are a catalyst for some right-sizing projects. This improved connectivity does not come simply from connecting neighborhoods via a right-sized travel facility, but from improving multimodal access within and between the surrounding neighborhoods as well. Connectivity improvements help with revitalization, connecting neighborhood residents and businesses with economic opportunities within and beyond the community.

Reconnecting Scajaquada Park to its Neighboring Communities: the Scajaquada Highway Project - Buffalo

By right-sizing Scajaquada Highway, Buffalo is trying to reconnect the communities surrounding Delaware Park. Built in the late 1950s, the route of Scajaquada was once seen as ideal; it created only minimal impact because most of the right-of-way was already city owned and the land was "vacant"(i.e., a park).[11] The 2.2-mile Scajaquada Creek Arterial Highway was constructed through the center of the park. Its construction created barriers between surrounding neighborhoods and the park, and limited access to the waterfront. Some in the community expressed a desire for the expressway to be redesigned as a parkway to decrease speeds and reconnect Delaware Park to nearby neighborhoods.[12] Because nearby educational and cultural institutions generate significant levels of pedestrian and cyclist activity, there is particular emphasis on improving the safety of existing crossings and adding additional infrastructure for these users. However, the project could not achieve consensus, and the environmental process was halted in 2018. The New York Department of Transportation made a number of safety and operational improvements to the highway, and plans to re-engage the community and stakeholders on the project.

For additional information on how Scajaquada plans to improve connectivity between the park and its surrounding neighborhoods, see: https://www.dot.ny.gov/scajaquadacorridor

2.2 Visioning

Visioning defines a compelling, idealistic vision for the future. Akin to a community brainstorming session, visioning allows community members to express their goals for the community and develop innovative solutions to community challenges unconstrained by planning mandates, budget constraints, and limitations of individual agencies. Sessions are comprehensive, taking into account land use, environmental, social, economic, transportation, and any other issues important to the community. For communities considering right-sizing projects, it helps to identify dissatisfaction with the current facility, generate ideas, clarify community goals, and define how the community wants to grow, including how they see transportation complementing this growth. The vision created should be balanced against the existing land uses and the volume and type of traffic those uses generate. For example, if a corridor targeted for right-sizing handles extensive truck traffic, the right-sizing strategy

[11] Buffalo Olmsted Parks Conservancy. "BOPC Position Statement on Route 198 Scajaquada Expressway." 2017.
[12] Kurutz, Steven. "Once So Chic and Swooshy Freeways Are Falling Out of Favor." 2017.

implemented will need to account for existing land use as well as current and forecasted truck volumes.

Community Vision: Right-Sizing the Riverfront Parkway Revitalizes Chattanooga - Chattanooga

The Riverfront Parkway was originally built to move truck traffic efficiently throughout the region. By the late 1960s, Chattanooga's manufacturing industry was declining and the capacity of the Riverfront Parkway was no longer needed. The street-level replacement was a combination of shorter two-lane segments, facilitating safer pedestrian crossings, with stretches of four-lane urban boulevards providing additional access points to downtown and helping alleviate some areas of congestion.

Instead of working from the "top down," a citizens' committee, the Chattanooga Venture, was formed to help solicit public opinions on the parkway and its redesign. The committee actively sought out the public's suggestions and allowed the vision to form in community meetings based on input from participants rather than merely presenting a completed plan for feedback. The community vision included making Chattanooga more livable, more attractive to investment, and more connected. This vision included redesigning the existing Riverfront Parkway to be more supportive of multimodal transportation. A key feature of the plan was the construction of the Riverwalk, a 22-mile greenway along the Tennessee River. The belief was that the Riverwalk would be the first step to achieving the growth Chattanooga desired.[13]

What makes the right-sizing of the Riverfront Parkway unique is the clarity of the community vision and the magnitude of the redevelopment plan that guided its design and construction. Chattanooga's Waterfront Plan guided the redevelopment of 129 acres along the riverfront creating multiple public spaces, parks, public art, the aquarium, and removal of the Riverfront Parkway to help connect Chattanooga to its waterfront. [14] Reports claim that the population in downtown Chattanooga has increased by over 30 percent, that over $250 million in investment occurred by 2008, and that the riverfront has become one of the City's premier addresses. [15] The strong community vision guiding the Riverfront creation, the Riverfront Parkway removal, and the addition of numerous public spaces helped bring vibrancy and stability to downtown Chattanooga.

Additional information on the community's vision for Chattanooga can be found here: https://www.pps.org/reference/successchatanooga-2/

[13] For additional information on building visioning into the long-range transportation planning process, see: FHWA's *Livability in Transportation Guidebook-Planning Approaches that Promote Livability* https://www.fhwa.dot.gov/livability/case_studies/guidebook/livabilitygb10.pdf

[14] Hargreaves Associates. "Chattanooga 21st Century Waterfront Park."

[15] Seattle Department of Transportation. "Case Studies in Urban Freeway Removal." 2008.

2.3 Need for Action

To be successful, right-sizing projects need both public and political support. Engaging the public, being realistic about how right-sizing the facility will impact their connectivity and travel times, and respecting community visions of neighborhood character and the role transportation plays in it are crucial to building that support. Public and political collaboration can help overcome project barriers and can help translate shared visions into a shared reality.

Building Public Support for the Cheonggyecheon Expressway Removal – Seoul, Korea

The Cheonggyecheon Expressway removal did not occur in isolation. Before starting the expressway removal, now former Mayor of Seoul, Lee Myung-bak instituted a "demand management" campaign aimed at altering the driving habits of the daily expressway users. The implementation of a new bus rapid transit system along the former highway coupled with increased tolls and parking charges as well as reduced tolls for those who participated in weekly, voluntary "no driving days" did reduce vehicle use. One study found a 1.3-percent reduction in vehicle use from these policies and, while small, the program did alter commuting routes of more than 2 million vehicles and is thus likely significant.[16]

The success of the project depended on both political and public support. Politicians were driving the removal; then mayoral candidate Lee Myung-bak ran on the platform of removing the expressway. However, public support was harder to build—commuters had to be willing to alter their commute routes, potentially increasing commute times. The political team anticipated the public backlash and combined an extensive staff of public engagement personnel (just as large as the design team) with a vigorous "demand management" campaign and ultimately won over the public. Due in part to aggressive public outreach and demand management campaigns, the Cheonggyecheon project began with overwhelming public support—over 79 percent of Seoul residents supported the project with most willing to permanently rearrange their commute or alter the flow of traffic around their building to accommodate it.[17]

For additional information on building public support for the Cheonggyecheon Expressway Removal, see: http://www.preservenet.com/freeways/FreewaysCheonggye.html

[16] Vanderbilt, Tom. "Unbuilt Highways." (2010).
[17] Lonsdorf, Katherine. "From Freeways to Waterways: What Los Angeles Can Learn From Seoul." (2011).

3. Traffic Management Strategy

Given the intent to rebuild, rehabilitate, or remove the existing facility, the next consideration is what to do with the existing traffic and what multimodal improvements should be made. Communities should examine existing traffic volumes and patterns, in terms of motorized, non-motorized, passenger, and goods movement. Figure 5 traces one possible decision path for deciding what to do with the existing traffic. Each node represents a decision; together they form a potential traffic management strategy for right-sizing projects. In this step, traffic management strategies are identified and used to help implement policies targeting economic development goal realization. The final decision on how to accommodate existing traffic occurs later in the analysis process and is discussed in the Implementation Initiative section.

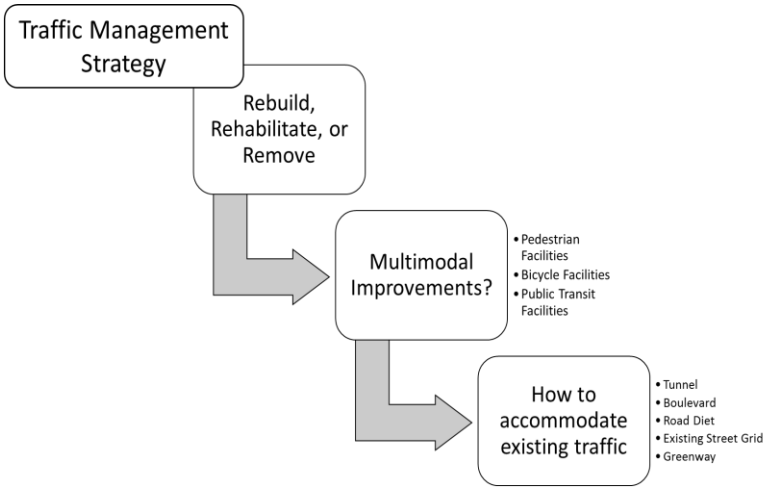

Figure 5. Chart. Steps to identifying a traffic management strategy.

The first question is the type of existing facility—is it an elevated freeway separating a community from its waterfront? Is it a depressed highway bisecting a community? Does the capacity need to be replaced somewhere else or can the volume be reduced without further impeding regional and neighborhood connectivity?

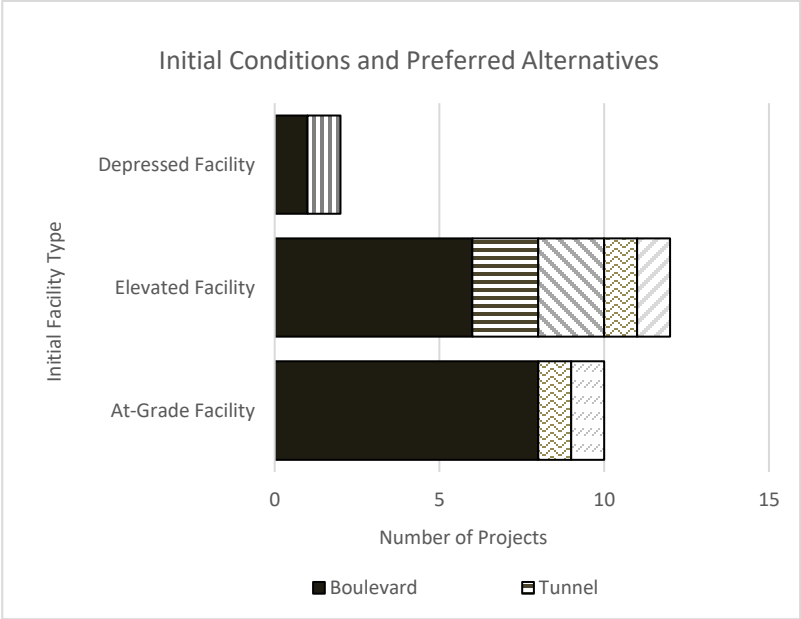

Figure 6. Chart. Proposed alternative by existing facility type.

If traffic has been decreasing or if truck traffic volumes are low, there may be little need to worry about diverting it. Capacity could be absorbed by a mix of alternative routes and modes. Growing economies or those with heavily traveled facilities will need a well-defined traffic management strategy. MPO transportation demand models, discussed further in the Methodology section of this paper, can forecast how transportation demand may change and are a tool for understanding how travel times, access, and connectivity may change based on

different traffic management strategies.

Figure 6 describes the traffic management strategies of the case studies linking the existing facility to the proposed alternative traffic management strategy. Out of the 24 projects examined for this paper, over half opted for facility removal and replacement with a boulevard. Boulevard replacements were common alternatives for existing at-grade facilities and for elevated facilities. Additionally, a few of these boulevard replacements were combined with other development strategies such as the inclusion of greenspace or pedestrian promenades. This has the benefit of slowing traffic and allowed for inclusion of livability improvements such as designated bicycle and/or pedestrian facilities allowing safer multimodal travel.

Other traffic management strategies included adding decks over a depressed highway (labeled as depressed highway), moving the facility underground (a tunnel), or relocating an existing elevated freeway to the outskirts of the neighborhood (labeled as elevated freeway).

A Note about Right-of-Way Acquisitions and Disposals

With reclaimed land a byproduct of many right-sizing projects and changing facility footprint sizes a component of traffic management strategies, planners must be aware of the right-of-way and disposal requirements, which apply when Federal dollars are used to fund any phase of a project. Right-sizing projects may require additional right-of-way acquisition or may result in the desire to dispose of current facility right-of-way to allow for redevelopment. In acquiring additional right-of-way, special care must be taken to ensure just compensation of fair market value (FMV) or replacement in kind. Under Federal right-of-way rules, including the Uniform Act, property must be disposed of at fair market value unless the proposed redevelopment project is one of several types of projects providing some sort of long-term public good benefits (i.e., public utilities, public railroads, bikeways/pedestrian walkways, public transit, greenways, etc.). Additionally, public right-of-way can be transferred from one public agency to another. For more information on right-of-way acquisitions and disposals, visit https://www.fhwa.dot.gov/federal-aidessentials/catmod.cfm?category=rightofw

4. Economic Development Opportunities

Economic development seeks to stimulate investment in locations whose connectivity has been enhanced by transportation improvements. Often, right-sizing reduces the footprint of a transportation facility, which can act as a catalyst for inducing economic development in the project area. Figure 7 lists some potential economic development goals and impacts for right-sizing projects. Reclaimed land and improved connectivity make the area more attractive to business development. Improved livability and walkability and increased access to jobs helps draw new residents and retain existing residents further contributing to the development level of the community. Right-sizing can be seen as a rebalancing between the desire to improve economic competitiveness and social equity with the transportation and connectivity needs of the

surrounding community. [18]

Importantly, inducing increased business development can lead to increased traffic—including trucks—that serves those businesses. Right-sizing efforts should strive to create a roadway network that supports land uses along the corridor consistent with community desires related to right-sizing. Understanding the volume and type of traffic generated by new development in close proximity to a right-sized roadway is important.

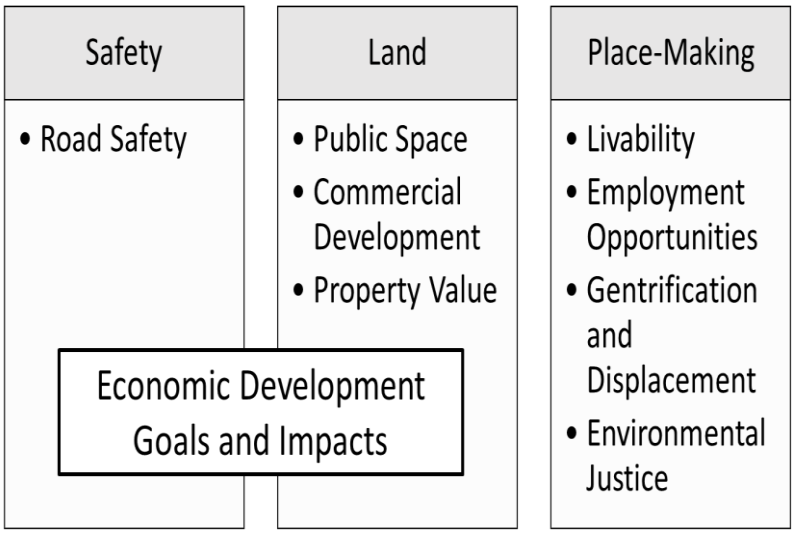

Figure 7. Chart. Economic development goals for and impacts from right-sizing projects.

The economic development impacts of right-sizing are connected to the ways in which altering the transportation facility and subsequent development in the project area affect community livability and quality of life. Specific mechanisms driving community economic developments are changes in:[19]

- *Business travel costs*—Businesses will locate and expand in areas where they have low costs and the potential to be profitable. These business travel cost improvements refer to both the cost to businesses of acquiring materials and delivering products as well as the cost to consumers of business-related passenger travel.
- *Business market reach*—Improved connectivity can make automobile traffic more efficient or can increase the range of population segments that have access to the project area (e.g., households without automobiles). These changes expand the range of markets for business suppliers, customers, and prospective employees.
- *Personal travel costs*—In addition to reducing the cost of business travel, transportation improvements can reduce the cost of personal travel. This increases disposable personal income, which can bring improved living standards and increased consumer spending.
- *Job access*—Reclaimed land provides the opportunity for business development and growth, expanding project area employment opportunities. Even when there is no business development in the project area, improved connectivity increases community access to businesses and the associated employment opportunities outside the project

[18] FHWA: "Economic development refers to the policies and actions that promote economic goals within a specific geographic area. The term 'economic development' has no specific definition in the Federal-aid highway program. However, the Declaration of Policy in 23 USC 101 states that 'transportation should play a significant role in promoting economic growth, improving the environment, and sustaining quality of life.' 'The economic goals that transportation policies and projects can support are generally determined by local priorities. They are often very specific to needs identified by local decision makers, such as to increase overall employment in a local area, increase employment in a specific industry or economic sector, or increase employment within a specific area." https://www.fhwa.dot.gov/planning/economic_development/"

[19] These mechanisms are adapted from Part A of the *Guidebook for Assessing the Social and Economic Effects of Transportation Projects,* http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_456-a.pdf

area.

- *Quality of life*—Infrastructure changes impact an area's visual quality, area noise and air pollution, and accessibility of important destinations, which are all factors in assessing the livability of a community.
- *Goods movement*—freight shippers and carriers tailor their operations to meet the demands of the global economy and consumers. Modern goods movement is based on smaller, lighter, and more frequent shipments. Infrastructure can be redesigned to accommodate these needs.

In the case of right-sizing projects, the above mechanisms help communities achieve specific economic development goals. These development goals can be divided into the three broad categories listed in Figure 7: **safety, land,** and **revitalization.** In the context of this paper, the economic development goals will be discussed in conjunction with the policies that, if implemented, may help communities realize these development goals.

Table 4. Development goal realization by category.

Category	Projects
Land	Alaskan Way Viaduct, Central Artery, Central Freeway, Cheonggyecheon Elevated Expressway, Claiborne Expressway, Cleveland Memorial Shoreway, Cypress Freeway, Embarcadero Freeway, Fort Washington Way, Harbor Boulevard, I-81 Viaduct, Indianapolis Cultural Trail, Inner Loop Expressway, Innerbelt, Jones Falls Expressway, McGrath O'Brien Highway, Park East, Riverfront Parkway, Route 29, Route 34, Scajaquada Highway, Sheridan Expressway, West Side Highway
Safety	Alaskan Way Viaduct, Central Artery, Cypress Freeway, Fort Washington Way, Gardiner Expressway, I-81 Viaduct, Indianapolis Cultural Trail, Inner Loop Expressway, McGrath O'Brien Highway, Route 29, Route 34, Scajaquada Highway, Sheridan Expressway, West Side Highway
Revitalization	Alaskan Way Viaduct, Central Artery, Central Freeway, Cheonggyecheon Elevated Expressway, Claiborne Expressway, Cleveland Memorial Shoreway, Cypress Freeway, Embarcadero Freeway, Fort Washington Way, Gardiner Expressway, Harbor Boulevard, I-81 Viaduct, Indianapolis Cultural Trail, Inner Loop Expressway, Innerbelt, Jones Falls Expressway, McGrath O'Brien Highway, Park East, Riverfront Parkway, Route 29, Route 34, Scajaquada Highway, Sheridan Expressway, West Side Highway

Table 4 serves as a quick reference guide to projects that were able to realize economic development goals in specific categories. Table 5 serves as a quick reference guide for the specific development impacts in each of the three broad categories. It lists a description and a possible means of estimating the economic development impacts of these goals.

Table 5. Reference guide to economic development goals.

Category	Development Goal or Impact	Description	Proposed means of estimation
Land	Commercial Development	Removing underutilized highways creates a more aesthetically pleasing landscape that motivates investors to develop the area. Reclaimed land provides the opportunity for development and for businesses to relocate. Improved connectivity provides benefits to existing businesses in the project area.	Case Studies, Public Involvement, Property Value Changes
Land	Property Value	Right-sizing projects may lead to property value changes for properties in or near the project area. These changes arise only indirectly from the right-sizing project instead driven by the project's impacts on the underlying factors driving property values. These factors include improvements in accessibility, safety, noise, aesthetic quality, community cohesion, and business productivity.	Case Studies, Property Value Changes
Land	Public Space	Land reclaimed through right-sizing projects can be used to develop the surrounding land into public parks or other public spaces, which allows for community-minded use by the local population.	Case Studies, Public Involvement, Property Value Changes
Safety	Road Safety	Road safety improvements from right-sizing projects include structural and geometric improvements to improve vehicle safety as well as multimodal improvements allowing all modes to travel safely. Outside of upholding the value of human safety and reducing damage to personal automobiles and infrastructure, reduced congestion from accident prevention is an added benefit to improving road safety.	Case Studies, Public Involvement, MPO Transportation Models

Category	Development Goal or Impact	Description	Proposed means of estimation
Revitalization	Environmental Justice	Consideration of environmental justice impacts refers to ensuring that no single group gets a disproportionate share of the positive benefits or negative transportation impacts of a given right-sizing project. Right-sizing projects provide the opportunity to enhance the economic opportunities available to underserved populations by investing in multimodal infrastructure that improves neighborhood connectivity, livability, and walkability.	Case Studies, Public Involvement
Revitalization	Gentrification and Displacement	Gentrification is a broad term that encompasses multiple neighborhood effects resulting from improvements to neighborhood quality. If the revitalization is successful, an influx of high-income residents has the indirect benefit of increasing spending within the local economy. However, revitalization may have negative externalities as well. One source of potential displacement is the right-sizing project itself. Often, the rising property values, which tend to accompany a right-sizing project, can result in original residents being priced out of the market.	Case Studies, Public Involvement
Revitalization	Employment Opportunities	Land reclaimed through right-sizing projects can be used to develop commercial opportunities and create new jobs while enhanced connectivity between neighborhoods and downtown areas can improve physical access to these and other employment opportunities.	Case Studies, Public Involvement
Revitalization	Livability	Right-sizing projects provide the opportunity to reexamine and potentially alter existing infrastructure to help achieve broader community goals such as access to employment opportunities, affordable housing, quality schools, and safe streets. Community-oriented transportation strategies help create a sense of place, making the area more appealing to residents, tourists, and private developers.	Case Studies, Public Involvement, MPO Transportation Models

4.1 Land

By thinking about right-of-way creatively and in multiple dimensions, it is possible to decrease the footprint of the travel facility, allowing land to be made available for redevelopment without sacrificing available travel capacity. The new development and creation of **public spaces** brings new economic opportunities, helping increase **property values** and revitalize the project area. [21]

Commercial Development in the Hayes Valley Neighborhood—Central Freeway - San Francisco

The employment opportunities created by the Central Freeway conversion to a surface boulevard were facilitated by redevelopment of land and businesses along the facility. The result of over six years of planning through the Better Neighborhood Program, the plan sought to guide neighborhood redevelopment, balancing neighborhood character and community with new development and opportunities. Strategic goals focused on creating and maintaining pedestrian-scaled, diverse urban neighborhoods located near transit, jobs, shopping, and other amenities, and encouraged these neighborhoods to support and sustain new business and housing investments as well. The Hayes Valley neighborhood has seen significant investment and development, with some joking that boutiques and bistros appear to open by the day.[20] Residential sales prices have jumped suggesting the boulevard provides an amenity effect.

For more information on commercial development in the Hayes Valley and the Market & Octavia Area Plan and its related mixed-use development, see: http://sf-planning.org/market-octavia-area-plan

Additionally, many communities have used right-sizing to develop the surrounding land into public parks or other public spaces. These spaces have the benefit of increasing the livability, walkability, and quality of life of the surrounding community

[20] King, John. "In Hayes Valley, old freeway site is now architectural showcase." 2016.

[21] For those that own property, these additional economic opportunities and increasing property values are a benefit of right-sizing the facility. However, households that do not own land in the neighborhood (e.g., renters or hopeful buyers) lose out on the appreciation in property values, and may be priced out of the neighborhood. These impacts are discussed further in the **Revitalization and Creating Livable Communities** section.

Bringing Tranquility and Public Space to a Thriving Business Facility—the Cheonggyecheon Elevated Expressway Project – Seoul, Korea

Built in 1958, Seoul's Cheonggyecheon elevated expressway, once ringed by shantytowns, was removed in 2004. It carried over 170,000 cars a day to a thriving business corridor, and wary business owners in the facility feared that removing cars would result in customer loss. Additionally, there were over 3,000 street vendors who peddled their wares to people stuck in traffic, some even threatening to kill themselves if the project moved forward. Politicians were able to build public support for the project, and the resulting public space is popular with residents and tourists alike.

Seoul's former Cheonggyecheon Highway is now a 5.8-kilometer stretch of public space that is estimated to attract over 64,000 people daily, with nearly 20 percent of 2010 tourists visiting the Cheonggyecheon Stream. [22] The project benefits extend beyond tourists visits and popularity. The number of businesses around the facility increased by 3.5 percent and the price of land within 50 meters of the project increased 30 to 50 percent, double the increase in other parts of Seoul.[23] Additionally, temperatures along the stream are 3.3° to 5.9°C cooler than on parallel roads 4 to 7 blocks away and small-particle air pollution decreased by 35 percent.

For additional information on building public support for the Cheonggyecheon Expressway Removal, see: http://www.preservenet.com/freeways/FreewaysCheonggye.html

4.2 Safety

Right-sizing influences on **road safety** impact both motorists and nonmotorized transportation. Often, older facilities lack designated bicycle and/or pedestrian facilities. Building multimodal improvements into right-sizing projects improves the quality of life of existing residents by improving the ease and safety with which all population segments can travel (e.g., those without automobiles).

[22] @urban_future. "Removing urban highways – The story of the Cheonggyecheon Stream in Seoul." 2014.
[23] Landscape Architecture Foundation. "Cheonggyecheon Stream."

Improving Multimodal Safety—the Indianapolis Cultural Trail Road-Diet

The Indianapolis cultural trail is an 8-mile bike and pedestrian path built over a City right-of-way connecting neighborhoods to Indianapolis cultural districts and entertainment amenities. Previously, Indianapolis streets were 5 or 6 lanes wide with speeds close to 50 mph. The Cultural Trail right-sizing is classed as a "road diet" where the number of lanes and lane widths were reduced allowing for the creation of a bike and pedestrian trail with some areas large enough to incorporate separate facilities for bicyclists and pedestrians.

The final design reflected community desire for improved multimodal safety. This was achieved through traffic calming measures, which included: decreasing vehicle speeds by narrowing vehicle lanes and multimodal safety improvements including curb bulb-outs at intersections, improved bicycle facilities, and countdown timers and audible pedestrian signals. Surveys conducted after the project found that the majority of trail users use it for exercise or recreation several times a week and that feelings of safety were improved by the "road-diet" with 95 percent of respondents indicating that they feel safe and secure while using the trail. [24]

For more information on the economic development goals and project outcomes of the Indianapolis Cultural Trail road diet, see http://indyculturaltrail.org.s3.amazonaws.com/wp-content/uploads/2015/07/15-C02-CulturalTrail-Assessment.pdf

4.3 Revitalization and Building Communities

Right-sizing projects provide the opportunity to improve visibility and accessibility within the neighborhood (neighborhood connectivity) and provide the opportunity for neighborhoods to encourage vitality and development while still being respectful of the unique neighborhood character. Livable neighborhoods are more appealing to residents, tourists, and private developers. They create a sense of place, which can give community members a sense of identity and shared culture. They combine community-oriented transportation strategies for people and goods with policies promoting community health, happiness, and well-being to create livable, walkable, and bike-able communities. Moreover, incorporating livability principles into right-sizing projects can help communities maximize the efficiency of existing infrastructure and ensure that transportation projects are integrated with broader community goals.

[24] Burow, Sue & Jessica Majors. "Assessment of the Impact of the Indianapolis Cultural Trail: A Legacy of Gene and Marilyn Glick." 2015.

Revitalization: Creating a Livable Claiborne Community—Claiborne Expressway – New Orleans

Claiborne Avenue and the I-10 Expressway run through New Orleans' historic African American neighborhood, the Tremaine (the Treme). Once a sprawling street with an oak-lined neutral ground[25] and a bustling business facility, the construction of an elevated expressway divided the neighborhood. While neighborhood residents did not have input during the planning and construction process, community groups are now leading the call for removal and driving the development of alternatives. Support for removal is not universal. Some neighborhood residents fear that removing the expressway will destroy the only recently revitalized economy and neighborhoods while others see removal as an opportunity to remove what they view as an aesthetically unpleasing structure inviting negative conditions.

What both sides agree upon is the need to focus on neighborhood residents, the ones who remained even after the expressway isolated the community and the ones who are going to stay there to grow the community.[26] Right-sizing the Claiborne Expressway provides planners and residents with the opportunity to use transportation not only to connect people to goods and services, but also to bring the community together. The Treme already has a rich history and a unique neighborhood identity and culture, one they would like to maintain regardless of the redevelopment plan selected, which community-oriented transportation strategies could help reinforce. While right-sizing the Claiborne Expressway will not recreate the old neighborhood, some residents favor doing something different, bringing vitality while being respectful of the neighborhood and its distinct neighborhood culture.

For additional information on "Chartering the Future of Claiborne Communities," see: https://www.nola.gov/city/livable-claiborne-communities/9_lcc-study_-final-report/

For additional information on using community-oriented transportation policies to promote connectivity, revitalize communities, and improve public health and safety, see: https://www.fhwa.dot.gov/innovation/everydaycounts/edc_4/connections.cfm

The FHWA identifies six livability principles that can provide a foundation for interagency cooperation. These principles can help incorporate livability principles into right-sizing and other transportation projects. [27, 28]

- *Provide more transportation choices* [see Land]
- *Promote equitable, affordable housing*
- *Enhance economic competitiveness* [see MPO Transportation Demand Models and the Freight Analysis Framework**]**
- *Support existing communities*
- *Coordinate policies and leverage investment* [see

[25] Neutral ground is the term that residents of New Orleans use to describe what other regions term the "median."
[26] Davis, Rob (Director) and David Winker-Schmit (Producer). Claiborne Avenue: Past, Present, and Future [Video].
[27] These principles were adapted from FHWA's *Livability in Transportation Guidebook-Planning Approaches that Promote Livability*. For more information on incorporating livability principles into transportation projects, see https://www.fhwa.dot.gov/livability/case_studies/guidebook/livabilitygb10.pdf
[28] Some of these, noted above, are described earlier in this section or in later sections as they are closely tied to other development impacts or other aspects of right-sizing projects.

Implementation Initiative]

- *Value communities and neighborhoods*

Together, these livability improvements amount to quality of life improvements attempting to soften the impacts of displacement and gentrification, encouraging economic development and investment in the community, and helping achieve broader community goals.

Key Terms: Gentrification and Displacement

Gentrification is a broad term that encompasses multiple neighborhood effects resulting from improvements to neighborhood quality. Middle class residents are drawn to the city by new employment and recreational opportunities. Gentrification operates by accretion—a few people are drawn to the neighborhood because of its low property prices or unique building characteristics. Once a few "familiar faces" are present, more are willing to move. While this influx of high-income residents has the indirect benefit of increasing spending within the local economy, further encouraging growth, it has negative effects as well, such as the loss of commercial establishments who can't afford the rents and **displaced** households. When residents are displaced, while these residents may technically choose to move, it is unlikely that they had many other alternatives. Moreover, households that do not own land in the neighborhood lose out on the appreciation in property values. In the absence of other policies (e.g. housing-based), the rising properties that can accompany a right-sizing project can result in original residents being priced out of the market; including affordable housing requirements in redevelopment plans can help decrease the number of displaced community members.

While the original residents cannot be replaced, right-sizing projects can provide an opportunity for community revitalization in part by addressing environmental justice concerns. Reconnecting these divided communities and focusing on increasing access for disenfranchised communities can be achieved by improving area public transportation infrastructure and right-sizing the facilities isolating residents.[29]

[29] For additional information on reconnecting divided communities, see: https://www.fhwa.dot.gov/publications/publicroads/16julaug/04.cfm

Balancing Revitalization, Gentrification, and the Need for Affordable Housing—Central Freeway – San Francisco

The right-sizing of the Central Freeway and creation of Octavia Boulevard was accompanied by significant increases in neighborhood residential sales prices. Prior to removal, sales prices increased as distance from the facility increased, but post-boulevard creation, sales prices near the boulevard jumped $116,000.[30] San Francisco's inclusionary housing program requires 12 percent of units to be made available at below market rates for multifamily developments and 7 of the 22 parcels of reclaimed land were sold to the San Francisco Redevelopment Agency ensuring that affordable housing would be distributed throughout the plan area.

The qualities that make Hayes Valley unique also make it desirable—in 2004, restored Victorians were selling for upwards of $1 million. A quick online search currently shows Hayes Valley condos selling for between $1.5 and $3.5 million. The Market-Octavia plan recommends affordable units be spread across different housing types and the City anticipates that nearly half of the 1,000 units proposed will be for those with "special needs" including the formerly homeless, those with developmental disabilities, low-income seniors, and low-income families.[31] Affordable housing was earmarked for special groups, but those outside of these designated groups were often displaced. Even commercial rents increased to the point where Powell's Place soul food restaurant, a neighborhood fixture for 31 years, had to relocate to an area with lower rents.

For more information, see: http://sf-planning.org/market-octavia-area-plan

[30] Cervero, Robert, Junhee Kang, and Kevin Shively. "From Elevated Freeways to Surface Boulevards: Neighborhood and Housing Price Impacts in San Francisco." 2009.

[31] Asato, Yosh. ""From Freeway to Boulevard." 2015.

5. Implementation Initiative

The implementation initiative, depicted in Figure 8, is a discussion of the factors that move the right-sizing project from conceptualization to realization. It includes necessary steps such as describing the existing community and facility, identifying the investment plan and building public-private partnerships, as well as estimating economic development impacts. These are all necessary inputs into official planning documents such as Planning and Environmental Linkages (PEL) and the NEPA scoping process. These factors summarize the results of the earlier sections and provide a foundation for comparing alternatives, selecting the alternative, and moving the right-sizing project from scoping to construction to completion.

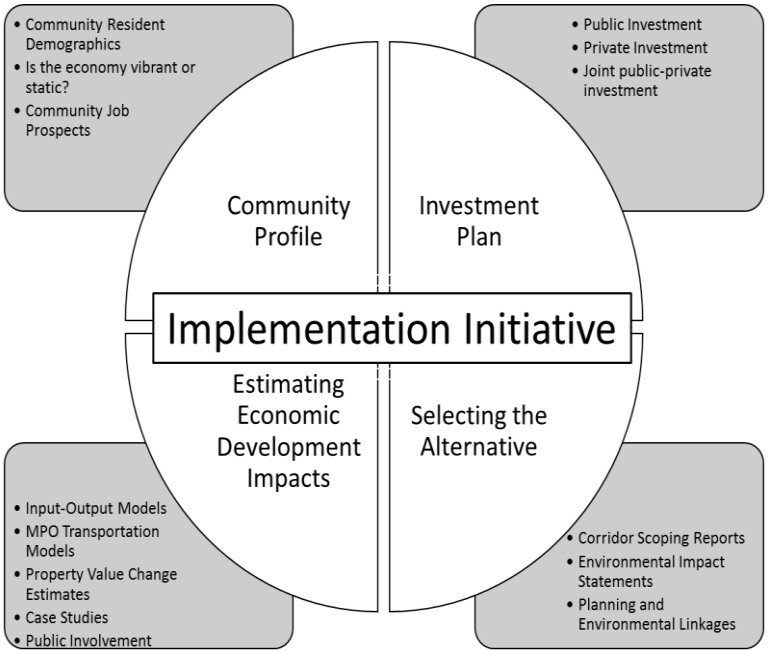

Figure 8. Chart. Implementation initiative, the final steps necessary to move the right-sizing project from concept to realization.

5.1 Community Profile

A community profile identifies the existing conditions of the community, such as if the economy is growing, the existing community demographics, and the local economic drivers (tech industry, manufacturing, tourism, etc.). They are useful for placing communities on the spectrum of potential for economic development (see Figure 9) and for defining characteristics of "control areas" for case studies and property value change comparisons.[32] For additional information on

32 For additional information on compiling a community profile, see Chapter 3 in FHWA's Community Impact Assessment: A Quick Reference for Transportation, https://www.fhwa.dot.gov/livability/cia/quick_reference/chapter03.cfm.

5.2 Investment Plan

Neighborhoods have some potential for economic development, which places them somewhere between a static economy and a growing, vibrant economy on the *Spectrum of Potential for Economic Development* (see Figure 9). The public sector plays an important role in helping induce economic development, but there must also be support from the private sector, including the freight sector. Cities may try to incentivize and induce economic development, but public stimulus alone has little impact. The public sector must create conditions favorable to investment while the private sector must see a rationale for investing.

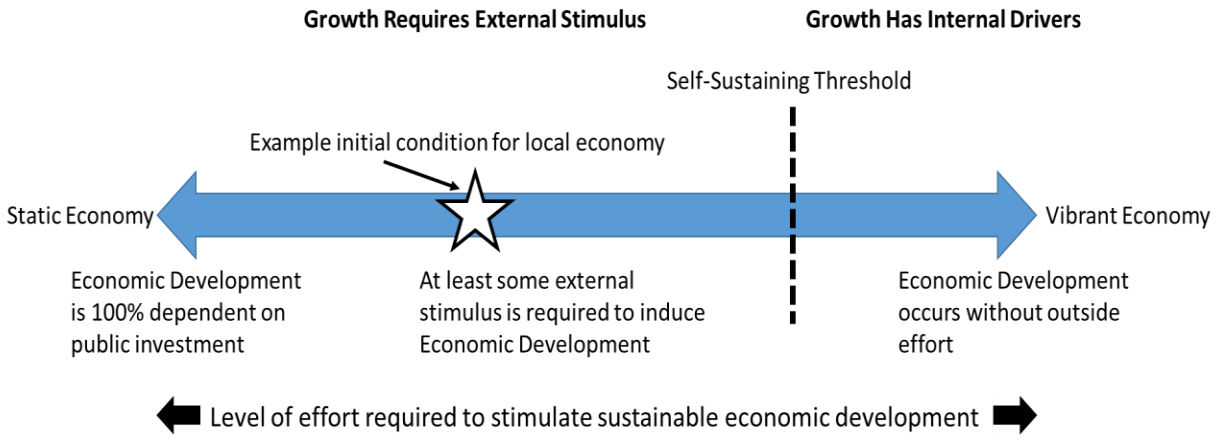

Figure 9. Chart. Spectrum of potential for economic development.

In static economies, such as in numerous Rust Belt cities, there may be little or no private sector interest in investing in land. For these cities, development will require stronger public investment—often in things outside of transportation (e.g., utilities or job-training programs)—up front in hopes of creating an environment more favorable to drawing private investment. As cities cross the "self-sustaining threshold," growth transitions from requiring external (public) stimulus to having internal drivers. In these growing economies, like San Francisco or Boston, there is already broad pressure for real estate development. In these instances, the private sector will likely take the initiative to develop any land reclaimed from right-sizing.[33]

[33] For more information on building public-private partnerships and leveraging funding for transportation investment, see FHWA's *Livability in Transportation Guidebook-Planning Approaches that Promote Livability* https://www.fhwa.dot.gov/livability/case_studies/guidebook/livabilitygb10.pdf.

5.3 Selecting a Methodology to Estimate Potential Economic Development Impacts

After determining that right-sizing a highway is the correct option for their community, planners engage in various types of forecasting to estimate potential economic development impacts. These forecasting techniques help quantify economic, traffic, and social impacts from right-sizing projects. Economic impacts are estimated using **input-output models, freight models, property value change estimates, public involvement,** and **case studies**. Traffic impacts, estimated using **MPO transportation demand models**, measure current traffic levels and project future levels with advanced traffic modeling.

While not all methodologies are appropriate for estimating all types of economic development impacts, multiple methodologies may be used to inform estimations of a single development impact. Figure 10 provides insight into the frequency with which individual methodologies were used to estimate potential economic development impacts. Every project studied used some form of **public involvement,** and almost half of all projects used **MPO transportation demand models**. Formal use of case studies was much less frequent, although almost all projects mentioned impacts of completed right-sizing projects in their outreach materials or news articles.

Figure 10 provides additional information on individual methodologies. The table includes a brief description of each methodology and generally describes some best practices for each. The table also provides information on which methodologies can be used to estimate individual economic development impacts and links methodology use to specific right-sizing projects.

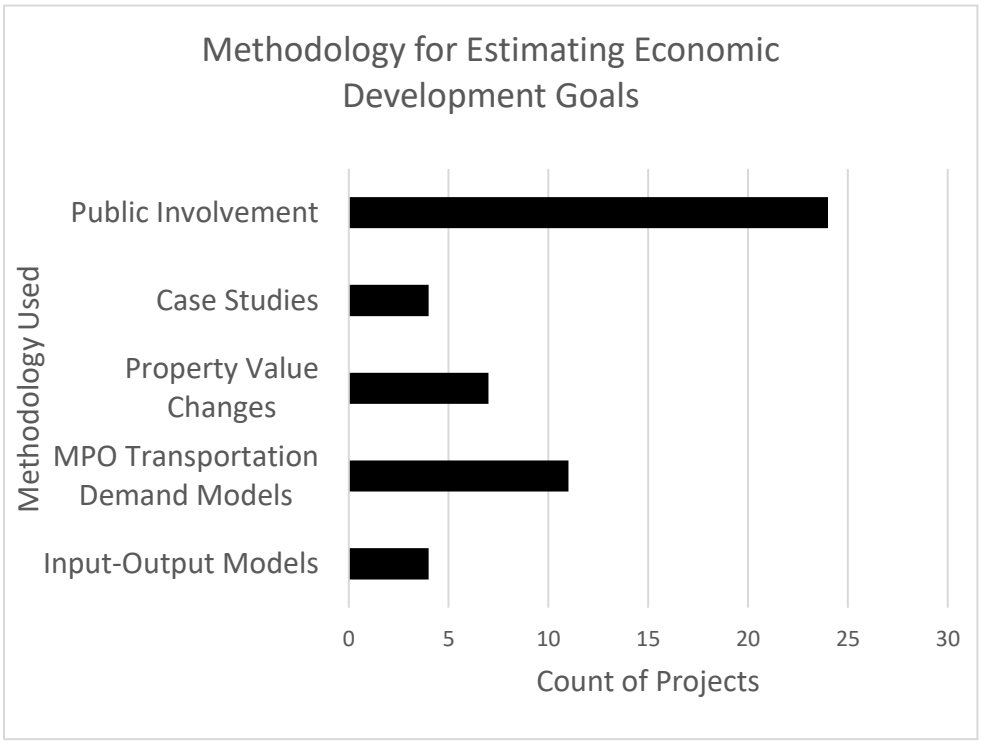

Figure 10. Chart. Methodologies used to estimate economic development goals.

5.3.1 Input-Output Models

Input-output models analyze the short-term economic impacts of construction funding as it filters into the regional and State economy through interfirm and interindustry purchases. These estimates are specific to a given level of funding and require estimation of a project's direct effect on local business growth. Model inputs depend on a robust understanding of how and when construction spending will impact local and regional economies. For accuracy, care should be taken to ensure accurate and complete estimation of a project's direct effect on business growth as well as to clearly define the period of impact analysis.

Projects like Boston's Central Artery and New York's West Side Highway mentioned a general use of multipliers to estimate construction impacts. Projects like San Francisco's Embarcadero Freeway and Seattle's Alaskan Way Viaduct used specific **input-output models** (REIMHS and RIMS II, respectively).

Commercial Input-Output Models, REIMHS and RIMS II - San Francisco and Seattle

The basis for the Regional Economic Impact Model for Highway Systems (REIMHS) is the belief that highway expenditures produce effects beyond providing new or improved services. Specific to highway construction projects, this 10-step model examines the impact of highway expenditure (construction funds) on employment, income, and production. Total monetary income, a combination of savings and material investment, is input into regional multiplier matrices, which generate value estimates for regional industry output, employee earnings, and employment. This model was used by San Francisco planners during the Embarcadero Freeway right-sizing project to estimate the impacts of construction spending on the Embarcadero and the greater San Francisco Bay Area. For further information on San Francisco's use of REIMHS: https://hdl.handle.net/2027/ien.35556030111942.

The Regional Input-Output Modeling System (RIMS II) uses regional multiplier matrices to analyze effects attributable to project construction. This model is applicable to any construction project and tries to answer the question: how does the economy respond to an increase in the demand for construction goods and services? The response is measured by changes in regional and State activity, employment, and associated job earnings. Seattle planners used this system to model the construction impacts of the Alaskan Way Viaduct removal and subsequent tunnel replacement. For further information on Seattle's use of RIMS II: http://data.wsdot.wa.gov/publications/viaduct/AWVFEIS-AppendixL.pdf.

The development impacts modeled by multipliers are not unique to right-sizing projects in that they only relate to construction spending and limited to the construction phase. For right-sizing projects, the economic development impacts of greatest interest are those that persist long-term and more permanently alter the economic development level of the surrounding community.[34]

[34] Additional information on **input-output models** can be found in Part A of the *Guidebook for Assessing the Social and Economic Effects of Transportation Projects*, http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_456-a.pdf.

Table 6. Reference guide for estimating potential economic development impacts.

Methodology	Description	What economic development impact could it measure?	Best Practices	Resources Required
Input-Output Models	Use regional multipliers to estimate the effect of construction funding as it filters into regional and state economies through interfirm and interindustry purchases.	Impacts of Construction Spending	Accurate and complete estimation of a project's direct effect on local business growth; clearly defined period of impact analysis	Estimation of a project's direct effect on local business growth
Freight Analysis Framework	Provides macro level insights into the commodity trading and economic relations between regions, ties freight demand and performance of freight movement by highlight existing condition and for future freight flow scenarios.	Economic relationships of a region by various transportation mode, truck corridors of economic importance, major commodities and future growth scenario	Commodity flow information at a national, state, and regional level, which should be supplemented with additional locality-specific freight flow information for local analysis	Technical staff with experience and expertise in freight transportation planning and data analysis

Methodology	Description	What economic development impact could it measure?	Best Practices	Resources Required
MPO Transportation Models	Capture changes in travel desires given evolving population, employment, demographics, and travel behavior.	Road Safety, Revitalization and Livability	Comprehensive and accurate inventory of current facility and community conditions, clearly documented planning assumptions, model complexity necessary to forecast potential economic development goals	Technical staff with expertise and experience in travel demand forecasting; recent data with sufficient detail to provide estimates of regional population, employment, and land-use; well-documented key planning assumptions, which are used to develop the forecasts
Property Value Changes	Estimates the impact of right-of-way acquisitions and disposals, and planned/potential development on City tax revenue	Public Space, Commercial Development, Property Value	Accurate and complete understanding of direct effects associated with the proposed project; clearly defined study area; well-defined period of impact analysis and specify the period in which projects experienced specific development impacts; establish a basis for local vulnerability to property tax changes; accurate and complete assessment of relationship between proposed infrastructure changes and factors relevant to property value	An area comparable to the project facility, a "control area," that is demographically and economically similar to the project area and already possesses the preferred traffic management strategy; information on current market rents and current property prices for locations within the project area and "control area" at varying distances from the existing transportation facility

Methodology	Description	What economic development impact could it measure?	Best Practices	Resources Required
Case Studies	Reviews of comparable jurisdictions are used to provide an understanding of the range of development impacts experienced by similar communities completing similar projects.	Road Safety, Public Space, Commercial Development, Property Value, Revitalization and Livability, Jobs, Gentrification and Displacement, Environmental Justice	Selection of an appropriate study area and be clear about its definition; clearly defined the period of impact analysis and specify the period in which projects experienced specific development impacts; compare to projects and communities with similar mixes and scales of business activity within the project area; try to standardize results by comparing before and after results to surrounding communities	At minimum, an area that has started scoping or construction or has completed a right-sizing project; preferably: an area comparable to the project facility in terms of demographics, economics, land-use policies, etc. that already possesses the preferred traffic management strategy
Public Involvement	Helps clarify potential future outcomes, distinguish between a set of alternatives, and identify possible impacts and benefits based on consultation with stakeholders and community members.	Road Safety, Public Space, Commercial Development, Property Value, Revitalization and Livability, Jobs, Gentrification and Displacement, Environmental Justice	Well-organized and planned outreach; meaningful community involvement; engage the entire community including those who are traditionally underserved	Events and resources are inclusive of the variety of ways with which people interact and communicate with each other (i.e. provide translators, interpreters, etc.; facilitate small group or individual discussions, etc.

5.3.2 **MPO Transportation Demand Models**

Right-sizing projects enhance connectivity within the project area and improve access to locations outside the project area. This enhances economic competitiveness by decreasing travel time to employment centers, educational opportunities, and other basic worker needs. Additionally, the enhanced connectivity expands businesses' access to markets. By understanding these changes in access and mobility early on in the long-range transportation planning process, planners are able to develop policies and strategies to mitigate any adverse impacts, hopefully minimizing negative externalities for area businesses and community residents.

MPO transportation demand models capture changes in travel demand given community changes in population, employment, demographics, and travel behavior. Depending on the level of detail, they can also provide insight into road safety the livability and walkability of a community, and the efficiency of moving goods (freight) using the existing roadway network.

Analysis of Freight Flow Data and Forecasts, FAF

The Freight Analysis Framework (FAF), produced through a partnership between Bureau of Transportation Statistics and Federal Highway Administration, integrates data from a variety of sources to create a comprehensive picture of freight movement among states and major metropolitan areas by all modes of transportation.

Providing macro level insights into the commodity trading and economic relations between regions, the FAF ties freight demand and performance of freight movement by highlighting the existing conditions used to forecast future freight flow scenarios. It can provide useful information to State Freight Advisory Committees and others on the trading and economic relationships of a region by various transportation mode, the truck corridors of economic importance, the major commodities, and the future growth scenario. These entities can utilize the commodity flow information at a national, State, and regional level and supplement additional freight flow information for local analysis.

To effectively use the FAF, technical staff with expertise and expertise in freight transportation planning and data analysis are needed, and additional effort may be required to disaggregate freight flow.

For additional information on the **Freight Analysis Framework**, see: https://ops.fhwa.dot.gov/freight/freight_analysis/faf/

While early **transportation demand models** provided only limited information on changes in connectivity, newer models are capable of more robust detail, including accounting for multiple modes of transportation. The necessary detail level of these models is specified through the desired detail of model outputs and the planning assumptions driving the model forecasts.

MPO transportation demand models are data-intensive and require technical staff with expertise and experience in travel demand forecasts. Data must have sufficient detail to provide estimates of regional population, employment, and land use. Once prohibitively expensive, data has become more efficient to collect, cheaper to store, and has the ability to be shared more easily among agencies, greatly decreasing the costs associated with these models.

The Chinatown Area Transportation Study: A Transportation Demand Model – San Francisco

After the Loma Prieta Earthquake and subsequent closure of the Embarcadero Freeway, business owners in Chinatown, North Beach, and Fisherman's Wharf complained of decreased business revenue. While the Embarcadero Freeway did not physically deposit vehicles directly into these neighborhoods, the freeway improved connectivity by reducing travel distances and decreasing travel time to the neighborhood goods and services. Initiated in response to these Chinatown and North Beach community concerns, the Chinatown Area Transportation Study evaluated post-earthquake traffic conditions as well as proposed recommendations for improving access to the aforementioned areas. The study was informed by both quantitative metrics: traffic volumes, travel times, and intersection operating conditions; as well as by qualitative ideas expressed in working sessions and public meetings, including community cohesion and community concerns.

The result was the conceptualization of a long-range transportation plan for Chinatown, North Beach, and Fisherman's Wharf complementary to the right-sizing of the Embarcadero Freeway, with specific connectivity improvements like destination sign guides, intersection signalization, and extension of MUNI lines (public transit) incorporated into the proposed alternative.

While the San Francisco analysis was conducted before commencing construction of the right-sizing project, this study took place "after the fact," after the destruction and subsequent closure of the Embarcadero Freeway. While the study presented an accurate snapshot of traffic during the study time frame, it is possible that post-earthquake traffic and economic conditions had yet to normalize and thus detriments to businesses and decreases in access may have been overstated.

Moreover, travel demand models rely on a comprehensive and objective inventory of current conditions, but this does not include information on the larger economic environment. San Francisco and all of California was in a recession when the Chinatown Area Transportation Study was conducted, but this was not considered as one of the possible reasons for decreased trips.

For further information regarding the Chinatown Area Transportation Study, please see the Embarcadero Freeway EIS: https://hdl.handle.net/2027/ien.35556030111942

Finally, in analyzing the results of transportation demand models, care should be taken not to equate improved connectivity with increased consumer spending in the project area. Improved connectivity may expand the base of potential shoppers for local retail districts either by making local automobile travel more efficient or by increasing the range of population segments (e.g., households without automobiles) that have access to area businesses. However, the connectivity may also improve accessibility of goods and services outside the project area. Traffic may shift such that routes are used to travel through the project area to further retail districts that were previously inaccessible or deemed too far away. With changes in connectivity, some businesses gain while others lose business activity and, depending on the scope of the travel demand model, this traffic shift may not be captured within the model output. Additionally, changes in business

revenue are beyond the scope of transportation demand models.[35]

5.3.3 Property Value Changes

Studies of **property value changes** estimate the impact of right-of-way acquisitions, disposals, and planned/potential development on City tax revenue. Projects that attempt to forecast revenue changes started by taking stock of right-of-way acquisitions, all reclaimed land, and any improvements or amenity additions planned for project area developments.

One goal of right-sizing projects is to improve connectivity and as a result, businesses may relocate to sites with better connectivity than their current location. In estimating potential economic development impacts, it is important to distinguish between these businesses' relocations and project area growth. While business relocations are beneficial to the project area, new growth-adding new businesses, jobs, and opportunities within the project area is what induces net increases in local economic activity. The development potential of reclaimed land and possible amenity additions to developments already in the project area will likely increase City tax revenue. If right-of-way acquisition losses are not offset by additional development or amenity additions, the City will see a net decrease in tax revenues.

Forecasting Changes to City Tax Revenue: the Alaskan Way Viaduct Final EIS - Seattle

Right-of-way acquisitions decrease the tax base by forcing businesses located on these parcels to either relocate or close, depending on if they can find available space. For businesses that must close and are unable to relocate within the project area, this is a loss of tax revenue. For businesses that relocate, the tax base change depends on whether the business relocates in the same tax district (no revenue change) or elsewhere (revenue transfer to another tax district). Seattle's Alaskan Way Viaduct project found that several of the proposed alternatives would require expanding facility right-of-way. Twelve properties would be acquired for the Bored Tunnel Alternative, 40 properties for the Cut-and-Cover Tunnel Alternative, and 35 properties for the Elevated Structure Alternative. While fully acquired properties would not retain their structures or continue to pay property taxes, the project's EIS explicitly states that partially acquired properties would retain their existing buildings, maintain their current function, and continue to pay property taxes, albeit at a reassessed value. The EIS estimates approximate property tax losses in each area for each of the proposed alternatives. Estimates represent the loss of one year of taxes and are based on actual amounts collected for all the parcels to be acquired.

For more information on the Alaskan Way Viaduct project's right-of-way acquisitions: http://data.wsdot.wa.gov/publications/viaduct/AWVFEIS-Chapters.pdf

Potential decreases in tax revenue can be offset by future taxes collected on reclaimed land. These future tax streams can be estimated by asking questions related to the development potential of reclaimed land parcels.

[35] Additional information on best practices for **MPO transportation demand models** can be found in FHWA's *Certification Checklist for Travel Forecasting Methods*, https://www.fhwa.dot.gov/planning/certcheck.cfm

- Are developers already investing in certain properties or land parcels?
- Do zoning regulations guide the types of properties that can be developed on individual parcels?
- What is the existing demand for developable parcels in the area?
- Does the area have an abundance of substitute/alternative parcels?
- Will some parcels be used to create public amenities?

For parcels that already have development interests, estimates are based on matching developer-identified structural, building, and project characteristics to similar properties in the area. For parcels that do not already have development interests, planners may have ideas as to the mix of commercial, office, and residential space that they envision in the project area; developers may try and dictate the kind of development that occurs in an area; or zoning regulations may prescribe the type(s) of development permitted. Estimates can be calculated based on envisioned mixes of these properties with tax rate estimates based on nearby properties with similar design characteristics.

Best Practices for Property Value Change Estimates[36]

The strongest and most representative estimates will be for projects able to identify:

- An area comparable to the project area, a "control area," that is demographically and economically similar to the project area and already possesses the preferred traffic management strategy.
- Information on current market rents and current property prices for locations within the project area and "control area" at varying distances from the existing transportation facility.

Additionally, these projects will have a strong framework that includes:

- An accurate and complete understanding of the direct effects associated with the proposed project;
- A clearly defined study area;
- A well-defined period of impact analysis that specifies the period in which projects experienced specific development impacts;
- An understanding of local vulnerability to property tax changes; and
- An accurate and complete assessment of the relationship between proposed infrastructure changes and factors relevant to property value.

[36] These practices are adopted from Part B of the *Guidebook for Assessing the Social and Economic Effects of Transportation Projects* http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_456-b.pdf.

Estimating Property Value Increases in the I-81 Viaduct Project Area - Syracuse

ReThink81 estimated the value created by removing the I-81 Viaduct and replacing it with a street-level solution. The analysis estimated the value by collecting public tax records for a sample of buildings that may be representative of the development potential of the reclaimed land. Buildings were assumed to be newly built or recently renovated. Each existing property's market value per square foot was calculated and this average value was applied to land that would be made available by removing the viaduct. ReThink81 estimates that right-sizing the facility and subsequent development could result in $138.8 million in property value, which would add $5.3 million in revenue to city and county tax rolls.

For additional information on ReThink81's forecasts, see ReThink81's white paper: http://rethink81.org/wp-content/uploads/2014/07/Rethink81-White-Paper-1-June-2014-Final.pdf

The accuracy of these estimates, and thus their value in the forecasting process, depends on how closely neighborhood and development characteristics can be matched to existing locations. ReThink81 estimates used existing project area properties as a basis for comparison. This answers the question, if new properties were constructed in the existing facility/project area, how might tax revenue change? This approach is helpful when adequate comparison areas are unavailable, but underestimates tax revenue changes, as it cannot answer the question of how property values might change directly as a result of the right-sizing project.

Examining Changing Property Values - San Francisco

In highly diverse cities, like San Francisco, finding a comparable control neighborhood is challenging. One study, unable to identify "perfect" comparison neighborhoods, opted for what they termed "imperfect" matches. These comparison neighborhoods possessed many similar characteristics and were close, but not "perfect" matches. The challenge for the Embarcadero control neighborhoods was finding similar mixes of mixed-use developments as well as finding similar demographic populations. Because of its unique mix of office, commercial, institutional, and residential uses, researchers elected to use two control neighborhoods. Both were inland mixed-use neighborhoods in eastern downtown San Francisco, which included portions of Chinatown.

For properties located within 0.75 miles of the Embarcadero freeway/boulevard (both before and after right-sizing) there was downward pressure on prices, a "distance effect." However, residential units located near the Embarcadero also saw a "proximity effect," an amenity likely associated with their proximity to the water. Residential units saw a $64 decrease in value for every additional foot located from the Embarcadero. The closer properties are to the Embarcadero, the more scenic their water views tend to be, an amenity. Conversely, the closer properties were to the Embarcadero Freeway, or are to the redesigned Embarcadero Boulevard, the higher the instances of noise pollution and traffic congestion, negative externalities. For properties located on or near the Embarcadero boulevard, the proximity effect is stronger and property values increased; however, this will not be true for all projects. This difference between the proximity effect and the distance effect underscores the importance of balancing the tradeoffs of a right-sizing project.

For additional information on the hedonic pricing study of the Embarcadero, see the paper by Cervano et al.: *From Elevated Freeways to Surface Boulevards: Neighborhood and Housing Price Impacts in San Francisco,* http://www.tandfonline.com/doi/full/10.1080/17549170902833899?scroll=top&needAccess=true

For more information on using **property value changes** to forecast economic development impacts, see Part B of the *Guidebook for Assessing the Social and Economic Effects of Transportation Projects*, http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_456-b.pdf.

5.3.4 Case Studies

For projects that conduct **case studies**, reviews of comparable jurisdictions are used to provide an understanding of the range of development impacts experienced by similar communities completing similar projects. **Case studies** are largely descriptive and require information on the type of project, locational characteristics of the project area, and before and after information on changes in business or resident activity. This could be quantitative information detailing changes in business mix, property values, or congestion rates. However, **case studies** also provide the opportunity to collect qualitative, anecdotal information, such as resident perceptions of safety or strength of neighborhood effects like livability or walkability.

Steps for Applying Case Studies to Potential Right-Sizing Projects[37]

Step 1: From a transportation/infrastructure perspective, **identify similar completed right-sizing projects**. Projects with similar characteristics may include:

- The same type of existing facility (e.g., both are aging elevated expressways).
- Similar traffic concerns (e.g., both areas are over supplied with infrastructure relative to demand).
- Locations with similar traffic mixes (e.g., passenger cars, bicycles, pedestrians, public transit buses, and freight trucks, as well as the availability or proximity of public transit heavy, light, and/or commuter rail stations, freight rail yards, marine ports, and airports that generate passenger or freight traffic)
- Consideration of similar proposed alternatives (e.g., one is considering replacing an elevated structure with a surface boulevard, and one has already replaced an elevated structure with a surface boulevard).

Step 2: **Create a community profile** and compare the local project setting to that of the case study:

- These classifications can help assess the applicability of existing projects (case studies) to the project under consideration.

Step 3: **Assess the applicability of the case study** to the right-sizing project under consideration:

- The applicability of the case study depends on:
  - The strength of the match between the project characteristics in the case study and in the proposed right-sizing project.
  - The strength of the match between the local project setting and that of the case study.
  - The presence of multiple case studies with consistent results.
- Depending on the match between the community profile and conditions in the case study, case studies may be ranked as good estimates, underestimates, or overestimates of the likely magnitude of development impacts associated with the proposed project.
- However, even imperfect matches (under or overestimates) can help identify recurring themes between projects such as potential problems or potential project improvements.

When conducting **case studies** it is important to select an appropriate study area and be clear about its definition. At a minimum, the **case study** should have started the planning process, but has preferably started construction or has a completed right-sizing project. The most applicable **case studies** will be areas comparable to the project area in terms of demographics, economics, land-use policies, and that already possesses the preferred traffic management strategy.

[37] These steps were adapted from Part A of the *Guidebook for Assessing the Social and Economic Effects of Transportation Projects*, http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_456-a.pdf.

Learning through Case Studies: the I-81 Viaduct Project - Syracuse

The I-81 Viaduct Project compiled case studies of various right-sizing projects, providing Syracuse planners with a basis for predicting project impacts, identifying potential problems, and proposing potential project improvements.

Each case study began with a brief description, then attempted to answer a set group of questions.[38]

- What was the decision-making process?
- What were the outcomes?
- Are there parallels to the I-81 Challenge?
- What can be learned from this project in terms of urban traffic circulation, economic development, and the political/public process?

Generally, the case studies mentioned phrases such as "significant increases in investment," "economic revitalization," and "directly or indirectly stimulated developments." [39] However, individual projects studied did yield some potential project improvements to be considered by Syracuse. These project-specific improvements included:

- Specific design techniques, specifically for noise abatement (from the Orange County Expressway case study)
- The importance of taking a rigorous look at all alternatives, including exploration of different engineering techniques to achieve greater cost savings (from the Central Artery case study)
- The need for strong political leadership at many levels to move a project forward (from the Park East case study)

There are limitations to case studies, but as the I-81 case studies document suggests, that does not diminish their usefulness: "Although there may be only a few cases that are directly comparable to the I-81 facility, all of these projects can offer insight into some aspect of *The I-81 Challenge.*" [40] Ultimately, while case studies cannot provide definitive community-specific estimates of the impact of a right-sizing project on specific development impacts, well-chosen case studies can provide some sense of the development impacts and the range of magnitudes experienced by similar communities and projects. [41]

For a full discussion of lessons learned from the I-81 Viaduct Project case studies, refer to the full *Case Studies for the I-81 Challenge* document, http://www.thei81challenge.org/cm/ResourceFiles/resources/CaseStudiesReport_3-02-10.pdf

[38] Syracuse Metropolitan Transportation Council. "Case Studies of Urban Freeways for the I-81 Challenge." 2010.
[39] Syracuse Metropolitan Transportation Council. "Case Studies of Urban Freeways for the I-81 Challenge." 2010.
[40] Syracuse Metropolitan Transportation Council. "Case Studies of Urban Freeways for the I-81 Challenge." 2010.

41 Additional information on using case studies to estimate development impacts of transportation projects can be found in AASHTO's EconWorks planning tool, https://planningtools.transportation.org/13/econworks.html.

5.3.5 **Public Involvement**

Where there is an underutilized, over-traveled, or damaged transportation facility needing replacement, **public involvement** helps start and maintain an open dialogue among planners, stakeholders, and community members. Additionally, **public involvement** is a required component of the NEPA process. Agencies publish a Notice of Intent, which starts the scoping process and formalizes the agency and public's collaboration to define the range of issues and possible alternatives to be addressed in the EIS. Public **involvement** is a beneficial tool for providing insight into community desires and more nuanced neighborhood needs that may have been overlooked by planners from outside the community. Early in the planning process, **public involvement** can help clarify potential future outcomes.[42] As long-range transportation planning progresses, **public involvement** can help distinguish between a set of alternatives and can help identify potential project impacts.

Best Practices in Public Involvement[43]

- **Well-organized and well-planned outreach**. Outreach efforts should be purposeful, grounded, specific, and productive.
- Strive for **meaningful involvement as opposed to a "top-down" style of interaction**. Engage participants at all stages in the planning process, practice active listening, engage in a dialogue rather than just telling community members what is going to happen.
- Focus on **interests rather than positions**. This shifts the focus to finding out where the public is coming from rather than trying to decide on a solution right away. This is the difference between asking, "why do you want this" (where is the public coming from) and, "what do you want" (looking for a solution).
- **Include traditionally underserved populations**. More generally, this is making sure events and resources are inclusive of the variety of ways in which people interact and communicate with each other. These accommodations can include provision of translators or interpreters, but also things such as being active on social media and structuring outreach in a way that facilitates small group or individual discussion. For additional information on involving traditionally underserved populations, see FHWA's *Report 710: Practical Approaches for Involving Traditionally Underserved Populations in Transportation Decision-making,* https://planning.dot.gov/focus_publicEngage.asp

Efforts to engage the public can include seeking input from groups such as bike/pedestrian interest groups, public transit interest groups, freight advisory committees, or other transportation interest groups. These groups may provide useful insights and usually have a strong interest in transportation network modifications that impact their area of interest.

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[42] This early public involvement, visioning, is discussed in section 1, "Desire for Change." This section focuses on the role of public involvement in creating an actionable plan to achieve the community vision, distinguishing between a set of alternatives, and in identifying potential public impacts.

[43] These practices were adapted from FHWA's Public Involvement Techniques for Transportation Decisionmaking, https://www.fhwa.dot.gov/planning/public_involvement/publications/pi_techniques/fhwahep15044.pdf

Public Involvement in the Sheridan Expressway Planning Process – Bronx, NY

Sheridan Expressway planners actively sought community input to better inform their development of expressway alternatives. In deciding whether or not to proceed with the rightsizing of the Sheridan Expressway, planners used a variety of different community engagement tools such as land-use planning exercises and site visits.

Interactive activities, information boards, and video booths allowed participants to provide some background on themselves, where they live and work, and allowed them to voice their thoughts on the process, their neighborhood, and their needs. Planners used outreach mechanisms that could be successful regardless of age, spoken language, or education-level allowing for both written and verbal communication of ideas as well as providing note takers to all breakout groups. These tools helped community stakeholders gain a better understanding of the existing conditions and the challenges to redesigning the facility. Additionally, these site visits and opportunities for community involvement also allowed stakeholders to consider how the community's needs and desires can be met through different transportation strategies.

For additional information on public involvement in the Sheridan Expressway planning process, see: https://www1.nyc.gov/assets/planning/download/pdf/plans-studies/sheridan-hunts-point/workshop_summary_101511.pdf

5.4 Selection of the Alternative

The final component of the implementation initiative, the **selection of the alternative**, moves the project from conceptualization to realization. Based on insights gained from earlier sections, an alternative is identified, and further planning studies, such as PELs or EIS, help finalize the selection.

The selection of the alternative will be different for each community. It involves balancing impacts (improved economic development prospects and connectivity) with negative externalities (the potential for gentrification and displacement, continued noise, and air pollution) with community vision and neighborhood character. Each community will choose to balance those impacts differently.

Selecting the Alternative, the Cypress Freeway and Mandela Boulevard Project - Oakland

Completed in 1957, the Cypress Freeway connected Alameda County to downtown San Francisco and the Oakland waterfront. While the freeway improved regional connectivity, it also bisected the city, and West Oakland residents felt physically isolated by it. The 1989 Loma Prieta earthquake collapsed a portion of the double-decker Cypress Freeway, ***destroying*** it and creating an opportunity for a dialogue over how and where to reconstruct the freeway.

The West Oakland community has a strong tradition of community activism. Within *48* hours of the earthquake, the community had already formed the Citizens Emergency Relief Team (CERT), with the goal of providing the community the voice it lacked when the freeway was built, and to ensure that the reconstruction plans took the community's goals and ***vision*** into account.

Initially, Caltrans sought to rebuild the freeway in the same footprint as the destroyed Cypress, but CERT members used community activism as well as the language and symbolism of environmental justice to persuade Caltrans that the freeway reconstruction project needed to be viewed as more than just a transportation project. For West Oakland, the project provided an opportunity for community revitalization and to address the environmental justice concerns of community residents.

CERT developed a ***proposed alternative*** that moved the freeway further west. The alternative route would be closer to the Port of Oakland and would run alongside Southern Pacific railroad tracks for a portion of the way. The politically savvy CERT set up a phone tree, ***rallying residents and politicians*** to block use of the Cypress right-of-way. Within a week of the earthquake, CERT members had already flown to Washington, DC, to speak with the U.S. Secretary of Transportation about their plan, arguing that their plan better served local businesses, improved access to the Port of Oakland, and decreased regional travel times.

Selecting the Alternative, the Cypress Freeway and Mandela Boulevard Project – Oakland (continued)

The new route no longer bisected West Oakland, but still impacted a small residential portion of the community. These residents wanted the freeway to be moved even further west. However, Caltrans determined this was not compatible with existing highway construction standards—cars would have to slow to unsafe freeway speeds to navigate curves. As a ***compromise***, Caltrans agreed to additional mitigation measures including reimbursing costs for air conditioning systems, soundproofing at a local church, and additional soundwalls and landscaping. While this route still impacted a small portion of residential West Oakland, it was supported by the majority of the community. It had political backing and was selected as the ***alternative***.

With only six lanes, two less than the old one, the new freeway supports at least the same amount of traffic, 160,000 vehicles per day. Additionally, carpool lanes help smooth traffic flow and improvements were made to public transportation, ferry terminals, and park-and-ride lots. The *Freeway Performance Agreement* put policies in place encouraging ***economic development*** so that local residents and businesses would share in the construction spending benefits, the jobs and contracts generated by the project. Additionally, the agreement stipulated the creation of the Cypress/Mandela Training Center, providing job training to community members.

After 15 years, land reclaimed by moving the freeway was converted to the 1.3-mile Mandela Parkway, which West Oakland residents hope will further help ***revitalize*** the area. The fully landscaped, tree-lined parkway sits in the former Cypress Viaduct right-of-way and there are plans to link the parkway to the Bay Trail, extending nonmotorized access to Emeryville and up to Richmond.

For additional information on the economic development considerations built into the Cypress Freeway right-sizing project, see:
https://ntlrepository.blob.core.windows.net/lib/17000/17800/17843/PB2001104729.pdf

6. Conclusion

Right-sizing projects are an opportunity to use community-oriented transportation policies to address community problems. Often, community members and transportation agencies have different goals for transportation projects, but these goals need not be mutually exclusive. Moving away from the old "one-size-fits-all" approach to infrastructure development allows for the development of context-specific solutions and empowers communities and decision makers to work together.

The community should take an active role expressing its dissatisfaction with the current facility, working to articulate their vision for the community, and coordinating with planners to determine the steps necessary to make that vision a reality. The community is in a unique position to help sensitize agencies to the needs of the communities, ones that may have been overlooked by planners from outside the community. Additionally, the community can provide information helping to distinguish the most pressing needs of the community from the long-term vision and wants of the community.

State and local departments of transportation (DOTs) and metropolitan planning organizations (MPOs) are involved in the planning, design, construction, and operations and maintenance of travel facilities across all modes. They benefit from having technical experts on staff with access to the data necessary to forecast transportation demand changes across all modes of transportation, including private passenger vehicles, public transit, bicycling, walking, and goods movement. Their role in right-sizing projects is twofold, to provide the technical analysis necessary to justify selection of the proposed alternative and, more importantly, to engage the public and other agencies. Engaging the community helps create community-oriented innovation in transportation policies and allows the community vision to help guide the proposed alternatives. Engaging other agencies promotes synergy as right-sizing projects can be used to complement other Federal efforts/agencies. The inclusion of a multimodal facility strategy aligns with several emerging Federal policies including: DOT's Livability Initiative, FHWA's Community Connection Initiative, EPA's area-wide brownfields approach, and HUD-DOT-EPA's Sustainable Communities Partnership.

The strategies presented above are discussed in the context of analyzing a right-sizing project, but can be applied elsewhere. They are not specific to downgrading the functional class of a facility and can be applied to projects in rural and urban settings. The old, "one-size-fits-all" approach to transportation planning divided communities and left them with gaps in existing transportation and infrastructure. These gaps have created challenges to achieving livable, multimodal communities and have made it difficult for communities to create a positive community identity or sense of place. Newer, community-oriented transportation strategies, like right-sizing, are an innovative approach to addressing this outdated infrastructure. Any community can use community-oriented transportation strategies to encourage livability, build a sense of place, and use innovative transportation policies that promote health, happiness, and well-being in the community.

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8. Appendix

Table 7. Project database of all case study community profiles.

Project Name	City	Level of Completion	Date Complete	Existing Facility	Traffic Management Strategy	Economic Growth	Project Impacts
Alaskan Way Viaduct	Seattle, WA	Construction	N/A	Elevated Highway	Tunnel	Vibrant	Safety, Land, Revitalization
Central Artery	Boston, MA	Completed	2007	Elevated Interstate	Tunnel	Vibrant	Safety, Land, Revitalization
Central Freeway	San Francisco, CA	Completed	2005	Elevated Freeway	Boulevard	Vibrant	Land, Revitalization
Cheonggyecheon Elevated Expressway	Seoul, South Korea	Completed	2005	Elevated Expressway	Greenway	Vibrant	Land, Revitalization
Claiborne Expressway	New Orleans, LA	Scoping	N/A	Elevated Expressway	Boulevard	Vibrant	Land, Revitalization
Cleveland Memorial Shoreway	Cleveland, OH	Construction	N/A	Freeway	Boulevard	Static	Land, Revitalization
Cypress Freeway	Oakland, CA	Completed	1998	Elevated Freeway	Elevated Freeway	Static	Safety, Land, Revitalization
Embarcadero Freeway	San Francisco, CA	Completed	2002	Elevated Freeway	Boulevard	Vibrant	Land, Revitalization
Fort Washington Way	Cincinnati, OH	Completed	2000	Depressed Freeway	Depressed Freeway	Static	Safety, Land, Revitalization
Gardiner Expressway	Toronto, Ontario, Canada	Scoping	N/A	Elevated Expressway	N/A	Vibrant	Safety, Revitalization
Harbor Boulevard	Portland, OR	Completed	1978	Freeway	Boulevard	Vibrant	Land, Revitalization

I-81 Viaduct	Syracuse, NY	Scoping	N/A	Elevated Interstate	N/A	Static	Safety, Land, Revitalization
Indianapolis Cultural Trail	Indianapolis, IN	Completed	2012	Street Grid	Road Diet	Static	Safety, Land, Revitalization
Inner Loop Expressway	Rochester, NY	Construction	N/A	Depressed Expressway	Boulevard	Static	Safety, Land, Revitalization
Innerbelt	Akron, OH	Scoping	N/A	Freeway	Boulevard	Static	Land, Revitalization
Jones Falls Expressway	Baltimore, MD	Scoping	N/A	Elevated Expressway	Boulevard	Static	Land, Revitalization
McGrath O'Brien Highway	Cambridge, MA	Scoping	N/A	Elevated Highway	Boulevard	Vibrant	Safety, Land, Revitalization
Park East	Milwaukee, WI	Completed	2003	Elevated Freeway	Boulevard	Static	Land, Revitalization
Riverfront Parkway	Chattanooga, TN	Completed	2004	Freeway	Boulevard	Static	Land, Revitalization
Route 29	Trenton, NJ	Scoping	N/A	Highway	Boulevard	Static	Safety, Land, Revitalization
Route 34	New Haven, CT	Construction	N/A	Expressway	Boulevard	Static	Safety, Land, Revitalization
Scajaquada Highway	Buffalo, NY	Scoping	N/A	Highway	Boulevard	Static	Safety, Land, Revitalization
Sheridan Expressway	Bronx, NY	Scoping	N/A	Expressway	Boulevard	Vibrant	Safety, Land, Revitalization
West Side Highway	New York City, NY	Completed	2001	Highway	Greenway	Vibrant	Safety, Land, Revitalization

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