U.S.Department of Transportation
Federal Highway Administration



Creating Livable Communities

How the transportation decision making process can support more livable community outcomes

Federal Highway Administration
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Notice

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1 Introduction

The transportation system provides the foundation for how we live, how we connect with others, and how our economy grows at the national, regional and local levels. Transportation has always meant more than just getting from Point A to Point B. Whether by footpath, waterway, road or rail, transportation networks help define the character of our regions, communities and neighborhoods. Transportation investments help shape the character of places and how we experience our daily lives.

Transportation investment decisions require consideration of a variety of factors, reflecting a more broadly-defined set of expectations that link the dollars invested with community values, vision and goals. For example, how can the redesign of a roadway support local economic development goals to revitalize an aging commercial corridor? How might the type and location of a transportation improvement provide better linkages between more affordable housing and job centers?

Addressing livability issues in transportation planning, development and implementation ensures that transportation investments support both mobility and broader community goals. In a time of lingering economic uncertainty and declining revenues for transportation projects, these issues need to be thoughtfully addressed to achieve the maximum return in community benefits from a given transportation investment. A well crafted transportation project can be the catalyst for achieving a range of other community or regional livability goals including economic growth and job creation.

Livability Principles and the HUD-DOT-EPA Partnership for Sustainable Communities (PSC)

In June 2009, U.S. Secretary of Transportation Ray LaHood, U.S. Secretary of Housing and Urban Development Shaun Donovan, and U.S. EPA Administrator Lisa P. Jackson announced a new Interagency Partnership for Sustainable Communities to improve access to affordable housing, provide more transportation options, and lower transportation costs while protecting the environment in communities nationwide. The Partnership established six livability principles to act as a foundation for interagency coordination:

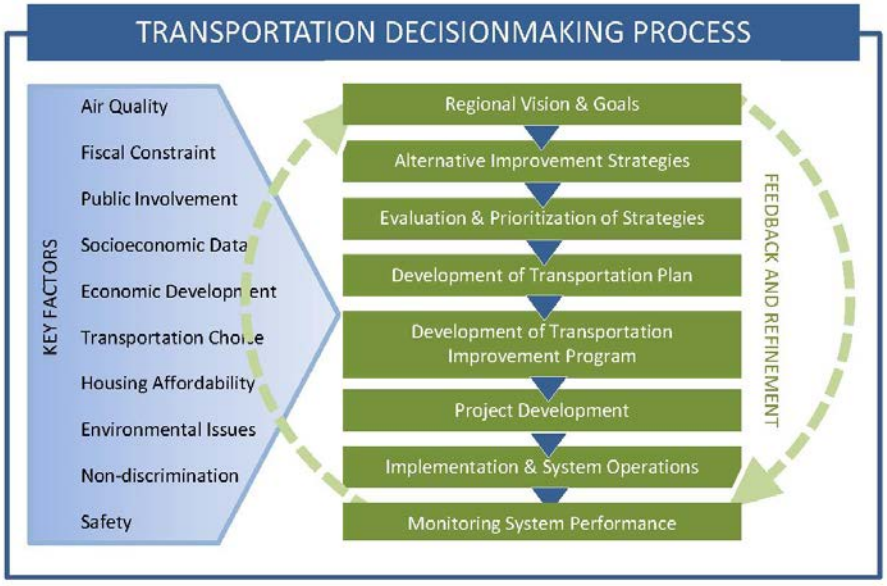
- *Provide more transportation choices*
- *Promote equitable, affordable housing*
- *Enhance economic competitiveness*
- *Support existing communities*
- *Coordinate policies and leverage investment*
- *Value communities and neighborhoods*

Communities across the country are looking for ways to develop transportation networks that serve these broader goals, such as supporting quality economic and community redevelopment, providing greater accessibility for people of varying income and ability, and helping reduce the cost of housing and transportation so people have more economic freedom. Safety is another major driver of livability. There is growing demand to design facilities for all users – Complete Streets – while balancing the different access and mobility needs of motorists, truckers, bicyclists, pedestrians and transit riders. As our society ages and becomes more diverse, how our transportation networks connect and function, how they support Main Street businesses and regional economies, and how they protect environmental and public health will become increasingly relevant to our long term economic prosperity and community quality of life.

This booklet provides strategies on how to effectively consider and incorporate livability objectives in transportation investment decisions.

Transportation Decisionmaking 101

Decisions for transportation investments are made through the transportation decisionmaking process, which refers to the Federally required process of planning, programming, implementation, and evaluation associated with the use of Federal transportation funds. The Federal role includes providing funds and standards for State and local decisions. States, Metropolitan Planning Organizations (MPOs), Rural Planning Organizations (RPOs), local governments, and transit providers ultimately make transportation investment decisions.



Partnerships

One of the key strategies in supporting livable communities is to establish partnerships to ensure cross-agency, cross-disciplinary approaches to addressing transportation, economic, environmental and housing issues. Livability issues are complex and interrelated, and require more holistic solutions. Some examples of effective partnerships include:

- *Multi-jurisdictional partnerships between Federal, State, regional, and local transportation agencies that can help planners to navigate policy, regulatory, and funding requirements.*
- *Cross-disciplinary partnerships, similar to the interagency HUD-DOT-EPA Partnership, that includes housing, land use, economic, public health and environmental agencies.*
- *Private-sector partnerships, including property owners and developers, local businesses, and community advocacy groups, that are important to help leverage private capital opportunities and develop policy solutions with private sector buy in.*
- *Public or private partners to champion the project through different stages of implementation help ensure that the principles of livability aren't watered down or lost in later phases of project development and help identify new opportunities to coordinate policies and leverage investments.*

The organization of this booklet generally follows the planning process structure outlined in the FHWA *Guide to Transportation Decisionmaking* and shown in the graphic above. This structure outlines a planning and decisionmaking framework that can help identify transportation investments that best support livable community outcomes. Through effective public outreach and feedback loops incorporated into each step of the process, people can ask questions about how transportation needs and recommended solutions relate to other community goals. The planning process also provides the framework to engage non-traditional partners and explore opportunities to better coordinate transportation investments with housing, environmental, economic and community development investments. This booklet highlights effective strategies for better linking transportation investments with livable community outcomes. The callout box on the following page provides a summary of these strategies, and each subsequent chapter highlights an expanded set of strategies and techniques associated with each phase of the decisionmaking process.

STRATEGIES FOR INCORPORATING LIVABILITY INTO TRANSPORTATION DECISIONMAKING

Develop a **community vision** that is supported by concrete, specific objectives to achieve that vision relative to livability principles.

Incorporate innovative **public outreach** strategies to engage diverse participants in the transportation decisionmaking process.

Engage **multiple partners** from housing, community and economic development, health, and environmental sectors at every step of the transportation decisionmaking process.

Use **new technical approaches** to identify and evaluate integrated alternatives that include the full range of multimodal options, land use and urban design, and management and operational strategies to address travel demand.

Identify **performance measures** to include broader livability concepts relative to accessibility, transportation choices, housing, health, economy and environment.

Create **compelling documentation** that includes words, maps, pictures and numbers to describe how plans and projects support livable community outcomes.

Use livability objectives to inform **project prioritization** and funding.

Coordinate Transportation Improvement Program (TIP) and Capital Improvement Program updates with local housing plans, other relevant short-term community development plans, and private development projects.

Update project programming documents to reflect **rationale and justification of the project need** relative to livability objectives.

Incorporate design elements such as **complete streets, context sensitive approaches, sustainable roadway design**, and other best practices.

Reevaluate legacy projects against livability goals.

Encourage overlap in transportation **design development and review with multiple partners** such as utility providers, transit operators, housing developers, recreation infrastructure providers, council on aging, health practitioners, and other stakeholders.

Work with multiple partners, including the private sector, on **funding issues** relative to project implementation.

Bundle multiple place-based projects that support livable communities to pursue major grant opportunities.

Revisit local and State transportation funding policies to assess how well they do or do not support livability principles.

Track system performance against livability indicators across multiple time horizons and regularly publish this information targeted to the general public and decisionmakers.

2 Regional Vision and Community Goals

What do we want our community to look like in twenty or fifty years? Where will all those new people live and work? How can we maintain a strong economy and encourage job growth? How do we reinvest in our declining commercial corridor or Main Street? Will my kids be able to afford a home here when they grow up? Will I be able to stay in my own home and travel to my daily destinations when I get older or have health issues that limit my mobility? Every person has different expectations and words to describe what it means to have a livable or sustainable community. For some, it means having more time to do the things they want to do (spending less time traveling), and to others it might mean having the financial security that comes from a good job, a diverse local economy and affordable living. Visions describe a desired quality of life. They often include words and images that reflect the values, culture and character of a given place – or the aspirations of a community. For example, an "age-friendly community" describes one where it is easy for people of all ages and abilities to get around.

Key Strategies for Addressing Livability Objectives in Visioning

- ✓ Vision is required.
- ✓ Engage new partners in the visioning process.
- ✓ Develop words and images that reflect the values, culture and desired character of a given place.
- ✓ Create livability indicators tied to community goals.
- ✓ Explore different scenarios to help refine the Vision.

Vision statements or goals are often expressed as desired future conditions such as:

"I want safer places for my kids to play outdoors and safer access to recreation areas."
"I'd like better access to parks and public lands."
"I'd like a reliable transportation system to get to work, school, and health care facilities."
"Housing and transportation costs are too high. We can change that."
"I don't want to spend so much on gasoline each week."
"I wish I could afford to live closer to my job or take transit to get there."
"I want to be able to travel independently using my wheelchair."

Visioning is essential in identifying the full range of plans and projects needed to support livable community goals. Without a sense of what is really important to the community, fully integrated planning is not really possible. Supporting livable communities through transportation planning requires getting clarity on the vision and priorities early in the process. This allows for the development of transportation concepts that support local land use, housing, economic development, and environmental goals. Transportation agencies can facilitate this by including a visioning or scenario planning step as part of (or before) the transportation plan update. MPOs, RPOs and State DOTs can also provide technical assistance to support visioning exercises that seek to incorporate livability principles into local plans. Visioning can be as simple as a group brainstorming exercise using phrases written on post-it notes; developed by using community surveys and focus groups; or evaluated and compared using more complex scenario planning techniques.

Scenario Planning

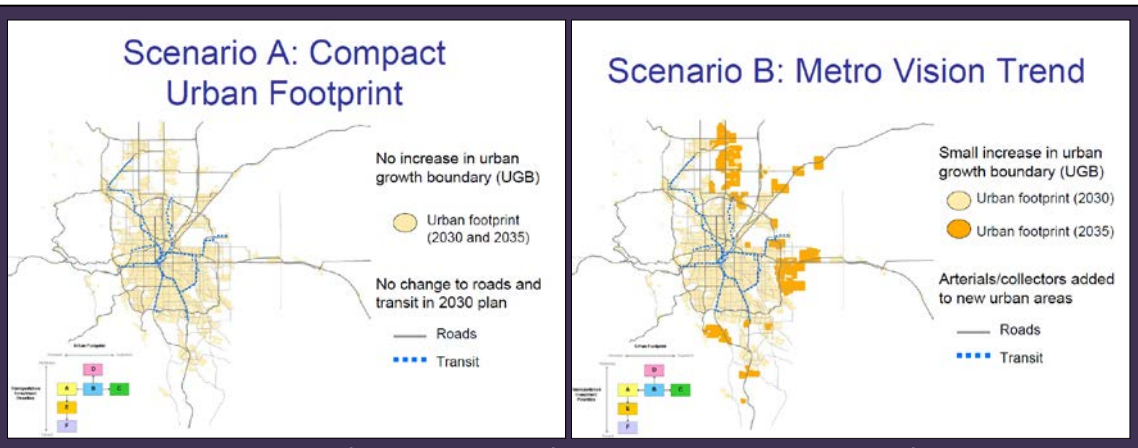
Scenario planning is an effective approach to explore different alternatives or scenarios to achieve a particular vision. Typically developed with a long planning horizon (20, 30 or 50 years), scenarios often focus on specific community goals, such as "I want more transit options in our community." Scenarios can help the public visualize potential future change, and demonstrate how different transportation and development approaches stack up against livability principles and community goals. Scenarios can also help decisionmakers to focus on the relative cost and funding of different alternatives. Scenario planning can utilize sophisticated GIS land use modeling and travel demand forecasting software, or it can be as simple as placing color coded sticky dots (representing various types of development patterns) in different configurations on a map and testing those concepts with sketch planning tools.

What If… The Region Grew Differently

The Washington Metropolitan Council of Governments recognized that transportation congestion, carbon footprint, and air quality challenges stem in part from the location of jobs relative to housing affordability in the greater Washington, DC region. In a sense, the region is divided into east and west; the western suburbs have a disproportionate share of total jobs and most of the affordable housing is located in the eastern suburbs. The MPO engaged in a "What If"… scenario planning exercise that allowed planners to test alternative scenarios for locating more jobs closer to affordable workforce housing. The results of this effort are being used by member jurisdictions in updating local planning and zoning policies to encourage more job growth in strategic locations, and in some cases more aggressively implement affordable housing programs in job-rich jurisdictions.

Scenario development and evaluation is an effective outreach and educational tool to support livable communities. It provides a forum for helping the public, elected officials and cross-disciplinary agency planners better understand how development patterns, transportation strategies, housing choices, and environmental impacts are linked. Scenario planning can broaden people's understanding of various community issues not traditionally addressed through transportation planning. The scenario process ultimately helps communities pinpoint the values that are most important to them and develop a path forward to reach those desired values with buy-in from all involved.

While most scenario-based visions have been conducted at the regional, sub-area, or corridor level, it can also be effective at the State level. States like Maryland and Rhode Island have used scenarios to develop State land use plans. California has funded Blueprint scenario planning efforts for all of the State's MPOs and rural regions. FHWA's *Scenario Planning Guidebook*, website and peer review resources provide readily available tools in this area (see Resources section).



Regional scenario images from Metro Vision for the Denver Regional Council of Governments (DRCOG) illustrating different land use and transportation investment strategies.

Community Values, Visions and Plans

The Wasatch Front Regional Council (WFRC) partnered with other public, private and non-profit entities in a visioning process for growth and development called the Wasatch Choices 2040 Vision. The MPO's effort followed Envision Utah, a statewide visioning effort. The Wasatch Choices 2040 vision established guiding principles and community goals that served as the basis for development of the regional long range transportation plan. The visioning included a study to identify the unique values of Utahans, and how those values influenced attitudes towards growth and development. The study was based on the premise that deeply held personal values are the 'end,' and the attributes associated with a person's daily quality of life are the 'means' that either support or detract from fulfillment of that end. This approach helped create the common language for policymakers to link specific livability policies with community values. Through extensive community surveys and small group interviews, planners identified top personal values and how those values linked to different community issues such as accessibility and housing diversity.

Livability Indicators

During the visioning stage, it is helpful to develop a set of indicators or performance measures to track progress toward achieving community goals. For example, in response to a community goal to provide more transportation choices, a key indicator could be the percent of people and jobs within the region located within one-half mile of a transit stop. Another indicator could be the percent of households within walking distance of a community amenity such as a park, school, library or local retail. Developing basic livability indicators during the visioning stage can provide some clarity on the range of transportation strategies or options that should be pursued in subsequent phases of the planning process.

Livability Principle	Indicator
Provide more transportation choices	Percent of jobs and housing located within one-half mile of transit
Promote equitable, affordable housing	Percent of household income spent on housing and transportation
Enhance economic competitiveness	Percent of workforce living within a 30 minute or less commute from primary job centers
Support existing communities	Percent of transportation investments dedicated to enhancing accessibility of existing transportation system
Coordinate policies and leverage investment	Percent of transportation projects where more than one federal funding source is utilized
Value communities and neighborhoods	Percent of housing located in walkable neighborhoods with mixed use destinations located nearby

Public Outreach and Livability

Considering livability principles during the visioning and goal setting stage requires engaging non-traditional partners in the transportation planning process. This could include people representing different interest areas or specialties unique to the specific community context. Housing planners, developers, economic development professionals, environmental resource agencies, rural development interests, stormwater engineers, utility providers, public health officials, council on aging staff members, disability advocacy groups, real estate professionals, and property owners are examples of the interdisciplinary perspectives needed.

In 2011, The Virginia Department of Rail and Public Transportation assembled a multi-disciplinary steering committee to support the development of multimodal and public space design guidelines for the Commonwealth. Representatives included traditional transportation interests as well as individuals representing economic development, land use, health and human services agencies, and housing planners.

Getting multiple partners to the table helps to develop a broader understanding of what the community wants and why. It also facilitates information sharing across disciplines to address community needs, and ultimately identify more holistic solutions. Effective public outreach processes can lay the groundwork for broad-based future funding strategies such as leveraging public and private resources. The process can also provide information that can be used to establish goals and livability indicators that drive the development of alternatives and plans. Effective public outreach during visioning also supports environmental justice goals for engaging low-income and minority populations in transportation decisionmaking, to ensure that decisions do not disproportionately burden these populations.

Approaches to Public Involvement and Communications

Engaging multiple partners and the public at every step of the transportation decisionmaking process requires tailoring the approach to the specific community context and the issues being addressed. Strategies to identify a community vision will differ from techniques to prioritize specific projects, or resolve conflict between decisionmakers. Regardless of the strategy, it is important to create a setting where participants can clearly see the links between different policy or project options and broader community goals. This can include a range of meeting formats or communication methods such as: public workshops, surveys, focus groups, one-on-one and small group interviews, newsletters, websites, social media and many more. Social media and Web 2.0 technologies provide an exciting opportunity to generate grassroots enthusiasm and input from younger, tech-oriented, or just plain busy people that may not typically attend workshops. Minority and low-income populations remain disproportionately uninvolved in many transportation decisionmaking processes. Guidance on engaging these populations, emerging trends on environmental justice and other public outreach best practices is available from FHWA (see the resources section).

3 Alternative Improvement Strategies

What are our major transportation objectives? What is the range of strategies we should consider to achieve those objectives? How might those objectives support other community livability goals? In many communities, a common transportation objective is to "reduce time spent traveling so people can spend more time doing other things." Addressing this objective can lead to a range of strategies that have different impacts on the physical character of the community, the cost of travel, and the environment. For example, how might strategies to improve travel speed within a corridor support or detract from livability goals to value existing neighborhoods? How might strategies to reduce travel distance (e.g. locate more destinations closer together) influence community character and the attractiveness of walking, biking or transit? Are there some corridors where increasing the speed or reliability of travel can create opportunities for diverting trucks off of local streets where slower speeds and pedestrian activity is most desired? Would a community accept slightly longer travel times if it meant expanding transportation choices with new transit options or creating safer pedestrian crossings?

A key livability principle focuses on expanding transportation choices. This typically means making it convenient for people to meet some or all of their daily travel needs without having to drive. This goal requires the development and evaluation of different multimodal transportation improvement strategies at the regional or corridor level. To do this effectively, the multimodal alternatives should identify capital, management and operations (M&O), or programmatic projects for complete streets, transit, biking, walking, and travel demand management (TDM). They should simultaneously consider the full range of complementary land use and urban design approaches to make these modes a desirable alternative to driving.

During the alternatives phase, planners should use technical approaches that include planning-level analysis to quantify and evaluate different multimodal transportation strategies against livability indicators. This could mean designing specific alternatives that address travel time savings, while reducing combined housing and transportation costs, or helping to reinvest in existing neighborhoods. These alternatives should include the full range of multimodal strategies at the project, corridor, and system-wide scale. The table on the following page provides examples of multimodal strategies associated with different alternative objectives.

Key Strategies for Addressing Livability Objectives in Alternative Strategies

- ✓ Use livability indicators to create multimodal alternatives that achieve multiple community benefits.
- ✓ Develop integrated land use and transportation alternatives that include all modes and support the surrounding community character.
- ✓ Analyze the links and interactions among street networks, land use, transit, bicycle travel, pedestrians, and freight.
- ✓ Allow land use and development to be variable when developing alternatives.

Travel-Time Budget

"The time we spend traveling each day for work, shopping, going to school, or recreating depends on many factors and varies by individual and location. Yet research shows that, on average, people around the world spend about five percent, or somewhere between 60 and 90 minutes, of their day traveling. These are global trends that have not changed much in the last several decades."

Excerpt from Schäfer, Andreas. "Long-Term Trends in Global Passenger Mobility," The Bridge. National Academies of Sciences. Vol. 36, No. 4, Winter 2006.

ALTERNATIVE OBJECTIVE	EXAMPLE STRATEGIES		
	System	Corridor	Project
Planning, design and construction to support all users	*Develop of system level alternatives that identify specific corridors and centers with multimodal emphasis*	*Evaluate different multimodal alternatives (e.g. transit modes or bicycle facilities) at the corridor scale*	*Incorporate complete streets design standards in areas within walking distance of schools or transit stations/stops*
Supporting healthy lifestyles	*Develop a system-wide master plan for non-motorized networks*	*Promote jobs-housing balance in mixed use centers along transit corridors*	*Implement intersection improvements to aid in safe pedestrian crossing such as timed signals*
Intermodal accessibility	*Identify system-wide intermodal hubs where walking, biking, transit, air or waterway passenger movements overlap*	*Coordinate intermodal station locations along corridors to complement travel patterns and surrounding land uses*	*Develop detailed intermodal station area plans to enhance ease of transfer between different modes*
Linking freight and goods movement with economic development and neighborhood livability	*Identify freight areas, livability areas and areas of conflicting overlap; system-wide strategies to support each and mitigation strategies for overlap*	*Redirect truck traffic to high mobility corridors outside of neighborhoods*	*Implement truck only lanes and signage on select corridors; implement off-peak delivery parking zones and signage*
Linking transit to diverse housing choices	*Assess housing affordability within 1/2 mile of transit stops/stations and develop targets to balance transportation choices*	*Create a transit corridor overlay district that encourages mixed income and mixed product housing*	*Develop transit oriented development plans that accommodate a range of housing options*
Targeting transit, walking and biking investments in infill and redevelopment areas	*Designate system wide priority areas for multimodal investments that correspond with infill/redevelopment zones*	*Incorporate corridor traffic calming strategies in locations that overlap with community redevelopment areas*	*Implement intersection preferential treatments (e.g., leading pedestrian interval at signals) and streetscape projects*
Using TDM strategies in concert with multimodal transportation investments	*Conduct a regional TDM assessment to identify best opportunities for TDM strategies*	*Engage private sector employers located along major transit corridors to encourage ride sharing or transit use*	*Implement designated preferential parking for carpools at employment locations and park and ride lots*
Using M&O strategies to increase efficiency for all modes	*Develop a regional ITS Architecture*	*Identify corridors where a range of strategies such as electronic messaging, real time transit information traffic signal coordination, and similar strategies will be most effective*	*Implement traffic signal coordination system*
Enhancing the natural environment	*Develop regional stormwater management plan incorporating green street strategies*	*Develop a corridor level green streets plan*	*Construct natural system bio-retention swales in concert with other multimodal infrastructure enhancements*

Each of the multimodal strategies described in the preceding table has different applications in rural, urban or suburban settings. For example, rural transit considerations might focus more on connecting small towns with large urban areas, distant job centers, airports or intermodal facilities through public or privately funded express coach bus routes. Transit strategies for a suburban arterial corridor may include increasing the frequency of the bus from one hour to thirty minute headways, with plans for increased frequency and enhanced service as more compact mixed use development occurs. Both strategies help expand the attractiveness and accessibility of transportation choices within the community but also reflect the specific community context.

Fully integrated planning as part of multimodal alternatives development requires planners to coordinate transportation planning with other interdisciplinary efforts. Regional and local comprehensive planning to develop plans and policies for housing, economic development, land use, and transportation can provide a platform to address a variety of issues simultaneously with similar technical analysis. Scenarios and alternatives analysis for transportation can be conducted in parallel to, or feed into, the statutory planning requirements for housing, environmental, or economic development plans. Making sure that representatives of each agency are informally involved in scoping, developing, and reviewing each others' plans is an effective way to integrate the resulting strategies and projects. These efforts can include (but are not limited to) concepts such as the following:

Transportation concepts

- Identifying different modal strategies by corridor (e.g. where transit, roadway or M&O strategies are desired).
- Identifying local roadway network connections to be built as development occurs.
- Identifying bicycle and pedestrian target areas and regional connectors.

Land use and urban design concepts

- Identifying types and locations of future development that clearly show intensity, density and mix of uses.
- Highlighting areas where redevelopment or infill is desired.
- Highlighting areas where transit supportive, walkable and bikable land uses overlap with associated transportation concepts (or where there are conflicts).
- Identifying locations for freight activity centers.

Housing concepts

- Identifying existing or future locations for workforce or affordable housing.
- Identifying accessibility between public facilities and adjacent uses or transportation facilities.
- Comparing combined housing and transportation costs of different locations.

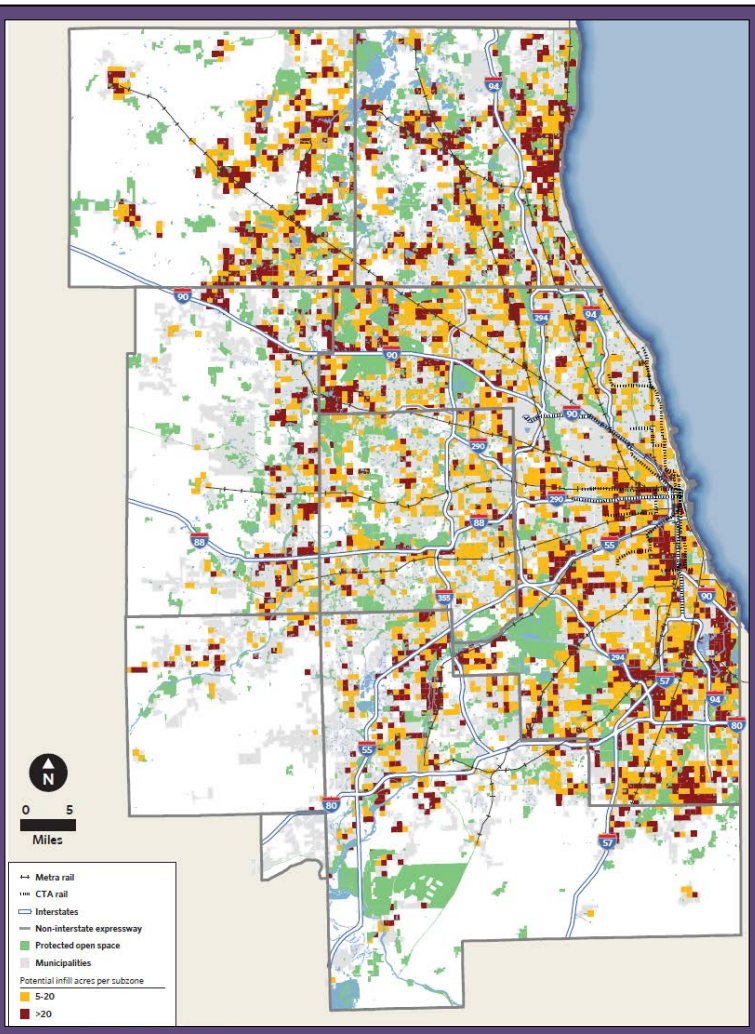
Environmental conservation concepts

- Identifying green framework mapping that shows desired areas of resource protection, preservation, linkages, and green infrastructure.
- Identifying green networks that could also serve as opportunities for recreation or active transportation connections.
- Comparing the energy or water use of each alternative.

Economic development concepts

- Identifying locations for business incubators and enterprise zones in areas with strong multimodal access.
- Identifying opportunities for new businesses (and jobs) to locate within existing neighborhoods through redevelopment, incentives and land use changes.
- Increasing transit accessibility between job centers and major airports.
- Demonstrating return on investments associated with different transportation strategies relative to increased development values or job creation.
- Supporting efficient regional freight and goods movement.
- Encouraging the consideration of Private-Public Partnerships and development of transportation improvement opportunities.

These concepts can be represented on maps, with simple photographs or 3-D renderings showing the desired future character of the community and narratives that link these concepts back to community goals. The graphics should help the audience to better understand the relationships between potential multimodal improvements and other community initiatives.



This map illustrates the overlap of regional infill and redevelopment areas (shown in yellow and red) and the major transportation routes as part of Chicago Metropolitan Agency for Planning's 2040 regional comprehensive and long range transportation plan.

4 Evaluation and Prioritization of Strategies

What goals matter most if I have to choose? What combination of transportation strategies seem most supportive of the type of community we want in the future? Evaluating and prioritizing strategies in support of livable communities means seeking the right combination of transportation and development concepts to achieve the greatest livability benefits within long term financial constraints. The livability indicators developed in early phases should be used to help the public, staff, elected officials and other stakeholders to measure the effectiveness of different scenarios and multimodal alternatives. This planning-level evaluation is not an exact science; it is meant to show the relative differences between pursuing one set of strategies over another. These comparisons help highlight key tradeoffs associated with different transportation and development decisions. While the distinctions between scenarios may be somewhat exaggerated for comparison purposes, most efforts do not end up with a single preferred alternative chosen. The review process usually leads to the development of a hybrid scenario or set of strategies to move forward with into the planning stage.

Key Strategies for Addressing Livability Objectives in Evaluation

- ✓ Use livability indicators to evaluate different alternatives.
- ✓ Introduce funding considerations at this stage.
- ✓ Expand traditional auto-focused performance measures to include accessibility and transportation choice.
- ✓ Use new partners to help facilitate discussions about tradeoffs of different scenarios.
- ✓ Establish a strategy for communicating the benefits of the desired set of alternatives.

How does the vision perform?
When compared to a projection of what 2040 might be like (based on current growth plans and current planned road and transit projects), the Wasatch Choices 2040 Vision results in 18% less congestion, 12% more transit use, and 23 fewer square miles of land consumption.

Different land use and transportation scenarios are typically developed to reflect certain assumptions about the relationships between different livability indicators, and how those factors can work together. For example, a regional scenario that focuses on expanding transportation choices is also likely to have more compact, mixed use development patterns. When compared to a more auto-focused scenario, these development patterns will demonstrate positive impacts relative to overall land consumption, protection of natural resources, reduced energy and water consumption, increased reinvestment in existing communities and making walking an attractive option for some of each household's daily trips.

Supporting livable community goals during the evaluation and prioritization phase requires effective facilitation of the tradeoffs discussion, leading to identification of a preferred set of strategies to move forward. Multiple partners representing housing, economic development or other interests should be at the table to ensure that the broadest set of livability indicators is developed. This typically means going beyond the traditional set of transportation performance measures such as automobile safety, preserving the existing transportation system, and reducing congestion and travel time delay. It requires incorporating additional measures such as accessibility, reducing GHG emissions (as measured by per capita VMT), reducing transportation and housing costs, improving bicycle and pedestrian safety, improving transit quality of service, improving efficiency of "last mile" freight deliveries, supporting existing

neighborhoods, and other applicable measures. The following table illustrates example draft performance measures that can be considered; however, it is critical that the measures used relate directly to the local or regional vision and goals.

Communicating how different scenarios perform can be as simple as producing a livability scorecard that compares indicators across each scenario, mapping growth patterns or density, or using other graphics to demonstrate how different alternatives impact the look, feel and character of a place over time. GIS mapping showing the locations of future housing and jobs, or 3-D illustrations showing before and after renderings of potential corridor improvements, can show how both development and transportation infrastructure might evolve over time. These images can also become important in helping a widely-supported vision to live beyond the next political cycle.

EXAMPLE PERFORMANCE MEASURES	
Transit Accessibility	*How usable is the transit network in terms of getting people to the top community destinations*?
Metrics	• Households within five miles of park-and-ride lots or major transit centers. • Percent of daily/peak period trips (origins and destinations) starting or ending within ¼ mile of a transit stop along routes that are accessible for all, including people with disabilities. • Percent of population and employment within 0.4 miles of transit along routes that are accessible for all. • Share of population with good transit-job accessibility (100,000+ jobs within 45 min). • Number of households within 30 minute transit ride of major employment center. • Percentage of work and education trips accessible in less than 30 minutes transit travel time. • Percentage of workforce that can reach their workplace by transit within one hour with no more than one transfer.
Vehicle Miles Traveled (VMT)	*How much are people driving on a daily basis?*
Metrics	• VMT per capita. • Light-duty VMT per capita. • VMT per employee.
Bicycle and Pedestrian Mode Share	*How many daily trips are made by walking or biking?*
Metrics	• Percent bicycle trips to overall trips. • Percent of bicyclist fatalities as a share of all fatalities. • Percent walking trips to overall trips. • Percent of pedestrian fatalities as a share of all fatalities.

Compelling imagery, quotable storylines and talking points about key benefits of a preferred strategy are an important step in ensuring long term public support and ultimately securing funding for implementation. Creating compelling stories about the preferred strategy should resonate well beyond transportation stakeholders. Doing so can help to build support and identify opportunities where new funding sources can leverage traditional transportation funding to support implementation.

The goal of this stage is to identify a set of multimodal alternatives and desired community features regarding:

- Location, type and density of where new jobs and housing will locate.
- Assumptions about redevelopment or infill locations.
- Multimodal transportation strategies defined at the corridor scale.
- Identification of freight and goods movement corridors and activity centers.
- Undeveloped or desired open space and habitat preservation.
- Locations for targeting workforce or affordable housing programs.

At the end of the prioritization stage, the public and elected officials should have a clear understanding of the most desirable conceptual land use and transportation strategies and how those strategies can support livable community goals. These concepts will be used as the starting point for subsequent planning efforts and policy changes. From a transportation perspective, the alternatives will be translated into more specific plans, policies and projects during the development of the long range transportation plan and TIP. However, scenario concepts that deal with land use, housing and community development, public health, access for people with disabilities, open space or habitat preservation, will require plans and policy shifts outside of the transportation process. Having new partners at the table who represent these interests can help ensure that related plans and investment priorities reflect the preferred set of strategies. The completion of the evaluation and prioritization phase creates a framework or blueprint for all subsequent plans, policies, and projects.

Photosimulation of potential multimodal improvements and redevelopment opportunities on Kamehameha Highway in Honolulu, Hawaii.

5 Development of Transportation Plans

We know how and where we want our community to grow, now what is our plan for getting there? There are lines on a map that show future transit routes, but how much will that cost and when will they be operational? How can we ensure that the transportation plan is synchronized with our local housing and economic development plans? If we build it, how do we ensure that desirable growth will come?

Transportation plan development provides the opportunity to get specific about the scope, timing, costs, funding and type of transportation improvements needed to implement the community vision. It requires analysis and documentation that demonstrates the interrelated nature of transportation, land use, economics, environmental, housing and public health issues. It should demonstrate how specific policies, projects and funding commitments can support overlapping goals covering a range of community issues. The plan development process should also begin to identify long term funding sources at the project, corridor or community-wide scale, and identify opportunities for specific partnering agreements, private investments or political initiatives needed to make those investments happen.

Key Strategies for Addressing Livability Objectives in Plan Development

- ✓ Incorporate community vision into the plan.
- ✓ Identify specific, measurable livability objectives.
- ✓ Use future jobs and employment forecasts and travel demand models to inform the planning process, but not prescribe the plan.
- ✓ Document the linkages between land use, housing, economic and environmental goals and transportation strategies.
- ✓ Bring in multiple partners from housing, economic development, public health and aging advocacy groups as part of the outreach plan.
- ✓ Create compelling documentation including words, pictures and numbers to describe how the plan supports livable community outcomes.

Public Outreach and Coordination

Engaging multiple partners in the transportation planning process encourages coordination with local comprehensive plan updates, regional housing plans, transition plans under the Americans with Disabilities Act, park and recreation plans, economic development plans, resource management plans, and other important community plans. This coordination should help identify stakeholders directly involved in the development of these plans, and engage them in the transportation planning process through appointment on technical advisory committees or participation in focus groups, workshops and public meetings. The agency's adopted public participation plan should include these stakeholders (both public and private) as key partners and describe how they will be involved in the planning process.

Planning Partners

The plan development process should involve techniques and strategies to connect or reconnect with multiple partners representing interest such as: housing, economic development, private development, the environment, and the general public, including underserved populations such as low-income and minority groups, persons with limited English proficiency, persons with disabilities, the elderly, and children.

Not every stakeholder needs to engage in every step of the plan development process, but when addressing livability considerations they do need to be at the table at critical intervals:

- establishing goals,
- confirming assumptions,
- looking at alternatives,
- developing funding options and
- identifying project priorities.

The role of the development community
The private sector development community should be encouraged to participate in the transportation plan development process. Developers, mortgage brokers, local banks and lenders, and real estate professionals can provide unique insights and help identify practical strategies for diversifying the local housing stock and addressing affordability issues, become funding partners for implementing transportation projects, and help build projects that reflect the community's desired development character.

Engaging multiple partners in the transportation plan development process should follow the "quality, not quantity" mindset. Combining transportation planning workshops with other community planning efforts can make it more efficient for the public, decisionmakers, and staff, while helping to develop better integrated solutions. The key strategy at this phase is to facilitate collaborative discussions where new and different perspectives can be brought to bear concurrently on transportation and community planning issues.

Coordinating Different Federally Required Plans
In urbanized areas Metropolitan Planning Organizations (MPOs) are required to update long range transportation plans every four or five years. The Transportation Improvement Program (TIP) identifies transportation project priorities from the plan, and allocates Federal funding for annual project design and construction. Most of the communities in an MPO also receive US Department of Housing and Urban Development (HUD) Planning and Community Development funds, which require the development of a Consolidated Plan (updated every five years). This plan identifies housing needs, the needs of homeless populations, community and economic development needs, and strategies for addressing those needs. Supporting the Consolidated Plan, HUD also requires an annual Action Plan that describes priorities for allocation of specific grant funding. US Environmental Protection Agency (EPA) funding for water, sewer, and stormwater system improvements, brownfield remediation, and other environmental issues requires similar planning and decisionmaking processes at the local level.

While these planning processes typically encourage or require coordinated planning, they may not explicitly connect housing and transportation, or mandate plan integration in support of livability goals. A fully integrated approach can combine a coordinated technical analysis, data sharing, pooled funding, and a single public and interagency planning process. It can also develop better, more cost-effective solutions and coordinated investment strategies. The same issues and opportunities can exist in rural areas, where rural planning organizations (RPOs) and State agency support can help integrate planning, funding, and project implementation across transportation, housing, environment, and economic development. This approach also applies to the State TIP (STIP) and other State agency housing, environmental, and economic development plans.

Goals and Measures

The livability indicators and measures established in earlier phases should provide the basis for establishing the transportation plan's major objectives. For example, if one of the livability indicators is to increase transportation choices within the region, the transportation plan objective could read "increase the percentage of population living within one mile of premium transit corridors from 5% to 15% by the year 2045." In a rural community, this same goal could include an objective stating "establish a daily express bus route to connect our historic main street area to the nearby city's intermodal transit center by 2018." Another livability goal could be to invest in existing neighborhoods and the plan's objective might read "allocate 75% of all available transportation funds to projects located within existing developed areas." Another objective for this same goal could read "Target 75% of all enhancement funds to bicycle and pedestrian projects located in or within a half-mile of the community redevelopment district boundaries." The transportation plan provides the opportunity to align specific community goals with measurable objectives supported by specific transportation investments.

Land use or transportation plan – which comes first?

Long range transportation plans should be consistent with locally adopted comprehensive plans and policies. This requirement often leads to the analysis of future transportation needs based on jobs and housing forecasts (which assume growth rates and development patterns) that reflect locally adopted zoning or land use plans. However, integrated land use and transportation planning is best accomplished when land use is considered a variable in addressing travel demand (see previous chapter). One effective approach is to develop two different data sets, a baseline set that reflects adopted policies, and an alternative set that represents the desired land use vision. The latter approach can help to identify opportunities where land use strategies can be implemented to reduce VMT and encourage more walking, biking and transit ridership. It is important to have local land use planners and other development stakeholders engaged to provide hands on guidance when this approach is taken.

In a perfect world, locally adopted plans would already reflect the land use and transportation vision. Local land use plans can often lag behind regional visions and LRTPs with regards to adopted policies that reflect livability principles. Initiating changes to land use and zoning requires political will and public buy-in, which is why changes to local development policies do not come quickly or easily. Therefore monitoring assumptions about land use and policy changes over time is another step transportation planners take as part of the monitoring and system performance. Given the requirement for more regular updates of transportation plans, adjustments can be made to align with land use policy shifts as needed.

Identification of Transportation Needs

The identification of specific projects and strategies for the transportation plan should tie directly to achieving the stated livability objectives. For instance, how will the multimodal corridor project that includes bus pull outs near stops, landscaped medians and signal preemption for bus priority benefit the nearby residents relative to housing affordability? Is a truck bypass route needed to ensure efficient movement of freight and goods within our community to support

economic vitality? The goal is to identify transportation projects at the corridor scale that perform best relative to the stated livability objectives. Project descriptions and visualizations can be effective at this stage when introducing new concepts such as multimodal corridors and illustrating the importance of surrounding community character. Project types should include the full range of modes and strategies including both capital and operating assumptions.

Technical Analysis

Developing concrete objectives for livability indicators and considering broader community issues requires new approaches to the technical analyses used to identify transportation needs. In particular, the technical analysis should:

- *Get beyond the conventional 'get the red out' modeling approach of addressing facility-based roadway congestion with widening strategies alone; include analysis of integrated, multimodal transportation and land use strategies.*
- *Start with a 'blank page' for identifying projects to address transportation needs to ensure that all options are on the table.*
- *Incorporate analysis to identify projects that will reduce per capita VMT, improve accessibility, and reinvest in existing centers by including both transportation and land use strategies.*
- *Work with housing partners to identify data needs (such as information developed as part of HUD Consolidated Plans), to help analyze and address short and long term housing affordability challenges.*
- *Gather data on regional economic forces, and how those forces might impact areas targeted for infill or redevelopment, Transit Oriented Development (TOD), affordable housing or freight and goods movement needs.*
- *Look at public health data on community obesity levels or asthma rates that could be correlated with strategies for active transportation or reductions in related air pollutants.*
- *Conduct analysis to understand system-wide environmental impacts relative to air quality, water quality associated with stormwater run off, open space or habitat preservation.*

One innovative approach to presenting project needs is to organize them by geography rather than project type. This can demonstrate place-based synergies between specific project investments and other community initiatives. A map series and place-based project listing can demonstrate how transportation investments can support livability principles. This mapping can also be helpful in identifying locations where transportation investments serve (or miss) concentrations of low-income or minority populations. This analysis can help highlight opportunities for overlapping public sector initiatives, while helping to avoid negatively impacting disadvantaged populations. Layering different interdisciplinary analysis maps can also identify opportunities for leveraging or bundling different funding sources in support of livable community outcomes. For example, the map could show a roadway reconstruction project to calm streets and improve pedestrian and bicycle access, and how it overlaps with an affordable housing project under construction. In this scenario, there might be opportunities to jointly fund some of the streetscape improvements through a combination of transportation and housing dollars. One of the simplest ways to encourage more cross-agency and interdisciplinary approaches is to show people where there is geographic overlap across different projects.

Funding Considerations

Transportation plans typically have a cost feasible or cost affordable element where project priorities are matched to available funding anticipated over the 20+ year planning horizon. Incorporating livability principles into this process can include creatively flexing different Federal and local funding sources to support different project types. It also involves looking for opportunities where non-transportation funding partners such as the private sector or community development agencies might be able to advance specific livability projects. The transportation plan development process should also begin to identify new revenue streams such as value capture strategies associated with tax increment financing (TIF) districts, or public private partnership projects where developer funding is contributing to specific livability project improvements. New approaches for coordinating development with multimodal corridor improvements can leverage public investments with a connected grid of adjacent streets, largely built by private developers.

Before-and-after Visualization of Corridor Strategies

Before and after images of Massachusetts Avenue in Indianapolis showing 3-D imagery of transit incorporated into an existing street included in the 2035 Indy Connect long range transportation plan.

Prioritizing Transportation Investments

Incorporating livability principles in project prioritization and cost feasibility analyses requires a transparent process to consider the benefits and costs of different projects or packages of projects. This can be accomplished using the livability indicators as criterion to evaluate or rank priorities. Another approach might be to bundle projects geographically, and then rank different locations around the region based on local policy support of the livability principles. For instance, does the local jurisdiction have land use and complete streets policies that encourage expanding transportation choices? Does a city have an economic development strategy to attract new businesses to job centers with high levels of accessibility to enhance competiveness? This sort of geographic prioritization approach gives preference to transportation projects in locations that demonstrate the highest commitment to the stated goals and vision of the region based on establishment of complementary land use or housing policies. Other approaches could involve giving priority to projects when funding commitments from non-traditional partners are present or advancing packages of projects that are associated with cross-disciplinary community initiatives such as those present in many of the HUD Sustainable Community Grant initiatives.

Communicating Benefits

What are the community benefits associated with the adoption of a particular set of transportation investments? How will investments today result in long term tax savings for the public in the future? Telling the story of the benefits of livability is a key element to sustaining long term community and political support. These messages start early at the visioning phase, but can be strengthened through the plan development process by creating supporting data that quantifies those benefits. Factsheets, benefit statistics, media kits, or websites are all effective communication techniques aimed at synthesizing information into easily understandable and compelling messages that the general public and politicians alike can rally around. Several benefits factsheets, research results, and communications material are available from FHWA (see Resources section).

Documenting Integrated Planning and Livability Benefits in the Transportation Plan

Long range transportation plans can document both the process and outcomes of integrated planning in support of livability principles. This can include showing how the plan's goals align with livability principles, or including a summary of public outreach efforts that resulted in bringing new partners to the table. It can also include providing tables or callout boxes that demonstrate how different plan objectives or strategies support other regional objectives such as those in Consolidated Plans for housing, HUD Sustainability Grants, regional environmental greenprint plans, or local comprehensive plans. If the LRTP included a visioning or scenario planning process, it is also helpful to include scenario and vision maps and other graphics to demonstrate the linkages between transportation plan elements and illustrations of how the community wants to grow and develop.

6 Development of Transportation Improvement Programs

Key Strategies for Addressing Livability Objectives in TIP Development

- ✓ Incorporate livability indicators as part of project prioritization criteria.
- ✓ Coordinate TIP/CIP updates with local housing plans, other relevant short-term community development plans, and private development projects.
- ✓ Update programming documents to reflect rationale and justification of the project need relative to meeting livability goals.

Moving from long range plans to project programming (the term typically used by transportation agencies to refer to project-level budgets) requires annual consideration of transportation project priorities. Whether developing the State Transportation Improvement Program (STIP), the regional TIP or a local capital improvement program (CIP), this step in decisionmaking should involve a technical process that prioritizes projects relative to how well they match up with livability indicators.

Many States and MPOs have incorporated a project selection and prioritization process or tool into their programming decisions. Incorporating livability factors into this process requires adjusting or developing new project prioritization criteria that link back to the vision, goals and performance measures. As an example, the Mid-America Regional Council (MARC) in Kansas City developed its 2040 long range transportation plan which included a regional vision that is "socially, environmentally and economically sustainable." This vision includes a series of goals and measures that address broader livability goals. MARC produces an annual progress report (as shown below) that demonstrates how well the community is advancing those goals. The data analyzed in this report can be incorporated into the annual project prioritization process to evaluate program priorities against current trends.

ACCESSIBILITY

FACTOR	MEASURE	DESIRED TREND		ACTUAL TREND	
Level of transit service	Population within ½ mile of fixed-route transit service	↑	Population living within ½ mile of fixed-route transit stops	↓	-5.27% (2000–2010)
	Ridership	↑	Annual unlinked passenger trips[1]	↓	-9.22% (2008–2009)
	Revenue service hours	↑	Annual hours of operating service	↑	+7.15% (2008–2009)
Environmental justice	Transportation investment in environmental justice tracts[2]	↑	Percent of total federal funds invested in environmental justice tracts	N/A	Awaiting data release in October 2011

ECONOMIC VITALITY

FACTOR	MEASURE	DESIRED TREND		ACTUAL TREND	
Transportation costs	Affordability	↓	Combined housing and transportation costs as a percent of median income	N/A	Awaiting release of 2010 data

Excerpt from MARC's Annual Progress Report Summary in June 2011. This annual report tracks progress in the region in advancing the goals outlined in Transportation Outlook 2040, and helps inform annual project priorities.

Programming projects typically follows a logical sequence where previously ranked projects move up in priority in a fairly predictable manner. Coordinating TIP/CIP updates with local housing plans, other relevant short-term community development plans, or private development projects can help planners to be more responsive to opportunities for leveraging funding, or identifying areas where design and construction projects might overlap. Additionally, most HUD Consolidated Plans only cover a five year planning horizon and therefore identify near term issues, strategies and priorities. For example, the City of Seattle's 2008-2012 Consolidated Plan identifies needs and priorities for:

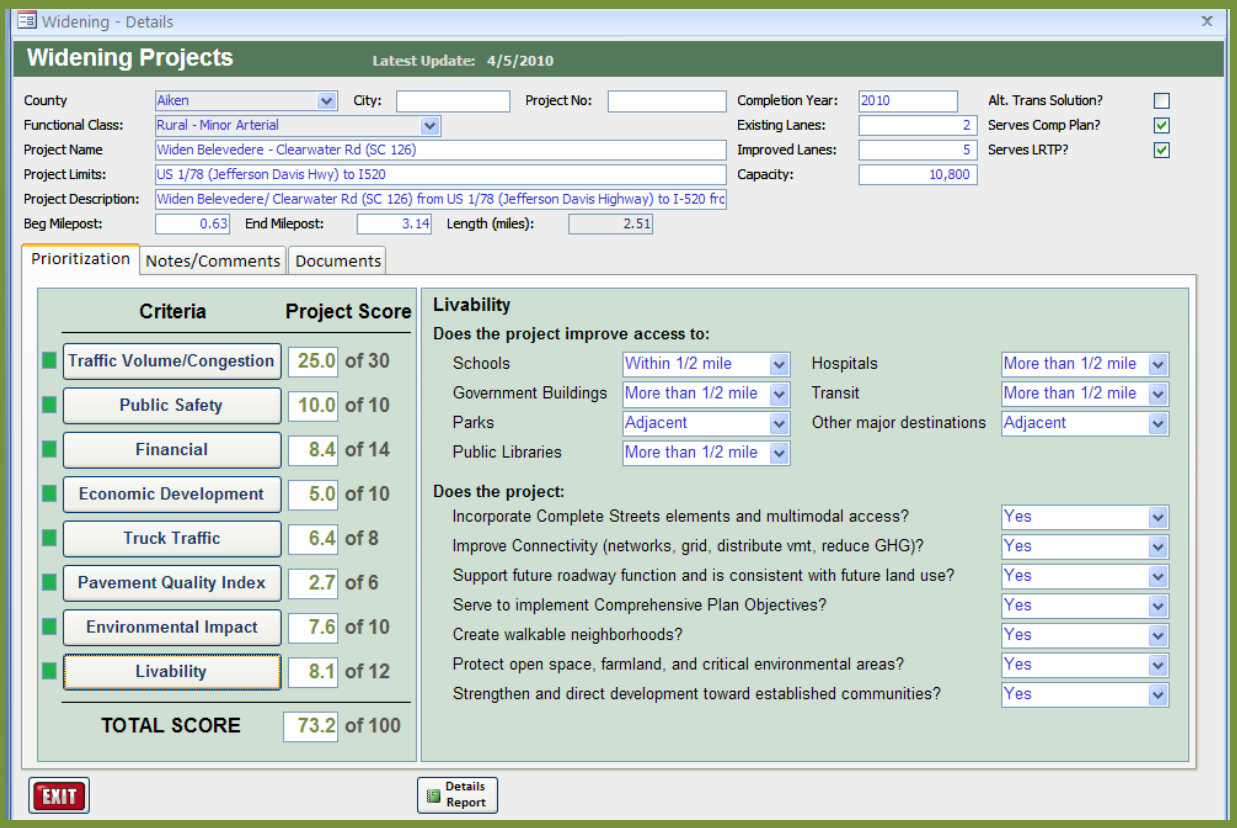
Linking the TIP with Livability Goals
State DOTs and MPOs are required to certify that all projects in the STIP are in conformance with the long range transportation plan. Long range plans that contain specific, measurable livability objectives can be a very powerful tool in this process.

- Affordable workforce housing (generally housing affordable to households with incomes at 31-80% of median income) that furthers revitalization or other community development goals in Housing Investment Areas.
- New construction of affordable housing in urban centers, especially those lagging in meeting residential growth targets as identified in the Comprehensive Plan or those where affordable housing is needed to help mitigate displacement of low-income people due to gentrification.

Better coordination of housing and transportation investments at the local or regional level can be reinforced by looking for geographic and policy overlaps. In the example noted above, what transportation projects are being programmed in Seattle's Housing Investment Areas? Are these projects increasing accessibility for residents or helping to lower transportation costs? Encouraging discussion of non-transportation livability criteria during the annual transportation improvement program update is an important feedback step that can help reinforce livability policies or identify gaps that need to be addressed. Integrated policies can also be reinforced at the State level by coordinating the STIP update with budgeting and grant making decisions by State housing, environmental, and economic development agencies.

Programming documents can also provide transportation improvement project descriptions that capture the full rationale and justification of the project need relative to meeting livability goals. This could include more details on how the project will address livability factors, as well as maps, concept-level designs, or illustrative graphics that show the relationship of the project with other community initiatives, or the unique context or design considerations desired.

The Augusta-Aiken Metropolitan Planning Organization incorporated several livability goals into the most recent update of the long range transportation plan. To aid in advancing these goals, Aiken County developed a new project prioritization tool that incorporates livability measures as part of the project evaluation and scoring process. These measures reward projects that improve multimodal access to city amenities, incorporate all modes, create walkable neighborhoods, improve connectivity between modes, support local comprehensive plans, protect environmental resources, and strengthen existing communities. The graphic below shows a screenshot of this tool applied to a roadway widening project.



7 Project Development

The project development phase translates concepts into detailed designs. Addressing livability goals at this stage requires incorporating design elements such as complete streets or context sensitive approaches that strike a better balance between moving cars and people, and incorporate sustainable roadway design best practices. It also means integrating housing, community development, environmental and economic development goals by taking advantage of opportunities to integrate livability design strategies, especially if new or joint funding opportunities arise. One example of this approach is to incorporate green infrastructure strategies (e.g. using best management practices for stormwater runoff that utilize natural systems such as landscaped swales or rain gardens) into roadway project designs, or incorporating transit stations and pedestrian access improvements into site designs for mixed use developments, community facilities or affordable housing projects.

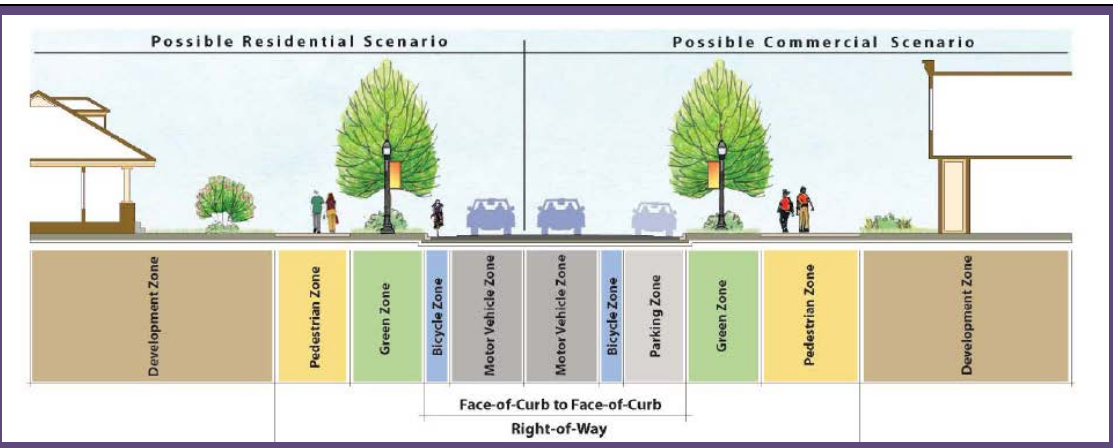
Accomplishing these objectives requires a high level of interagency and interdisciplinary coordination, supported by a strong place-based vision for what a particular neighborhood, corridor or city ultimately wants to be. Relating specific project objectives back to the regional or community vision is an equally important step. Encouraging overlap in design development and review within public works departments or between DOTs and utility providers is another strategy to foster more integrated design approaches. Several State DOTs and cities have created new project design and development guidance such as the example provided on the following page from the City of Charlotte that goes beyond conventional facility design. Many of these incorporate urban design, place types, green streets, and other livability concepts. The most effective agency efforts also include staff and consultant training in implementing the new design concepts.

Key Strategies for Addressing Livability Objectives in Project Development

- ✓ Use context sensitive solutions approach to project development.
- ✓ Incorporate livability objectives into the NEPA process.
- ✓ Incorporate design considerations such as complete streets, context sensitive approaches, green infrastructure, and sustainable roadway design.
- ✓ Ensure concept-level designs move from visioning into project-level engineering.
- ✓ Reevaluate legacy projects against livability goals.
- ✓ Encourage participation in transportation design development and review by multiple partners such as utility providers, transit operators, housing and health agencies, and council on aging.

NEPA and Livability

The NEPA process provides a very good framework for integrated planning in support of livable communities during the project development stage. Incorporating specific livability objectives into a project's purpose and need sets the stage for expanding consideration of alternatives and impacts analyses relative to specific livability indicators.



City of Charlotte, NC Urban Streets Design Guidelines focus on designing roadways for all users relative to different community context zones

Flexibility and Creativity in Engineering Design

"Highway design, like many technical professions, is rule-based in nature. Important assumptions and inputs to a design that occur early in project development can have a profound effect on the outcome, as they establish the framework around which design proceeds. The most significant of these inputs for highway engineers are design speed, design level of service and design vehicle. Integration of community values and environmental concerns with engineering means that these factors should influence the design choices. Project designers have choices. Design speed, design level of service and design vehicles are all choices, not mandates.

Creativity in highway engineering and design simply means not routinely applying the same solutions or approaches everywhere. There are many opportunities for creativity within the boundaries of the technical standards, policies and guidelines already in use. Creativity can also be fostered by re-directing attention of designers and decision-makers to thinking about performance-based solutions rather than physical or infrastructure descriptors. Merely reframing how a problem is described can help achieve creative solutions. When traffic volumes increase, some may describe the problem as "insufficient capacity"- a characterization that inevitably leads to solutions focused on adding lanes or their equivalent. If engineers and planners describe the problems as "person-trip demand exceeds the capacity of the facility during x hours of the day" the change in description can lead to additional solutions beyond increasing capacity. Solutions may include peak hour HOV or HOT lanes, signal synchronization and other ITS strategies, congestion pricing, parking management, and so forth." *Excerpt from CSS Quick Facts from FHWA*

Context Sensitive Solutions (CSS) is another process that can be utilized during project development to achieve broader livability objectives. CSS is a collaborative, interdisciplinary approach that involves all stakeholders in designing and building a transportation facility to better fit within a particular community setting. This approach can lead to design development that preserves and enhances scenic, aesthetic, historic, community and environmental resources, while improving or maintaining safety, mobility, accessibility and infrastructure conditions. CSS provides a holistic planning framework for engaging multiple stakeholders from planning through to the construction of a transportation facility.

Another opportunity to incorporate livability considerations at the project development stage is to reconsider legacy or construction-ready projects that may have been on the books for several years, or even decades, but have not been revaluated against community livability goals. New roadways, new bridges, new transit capital investments and other large scale projects are often delayed due to funding shortfalls or other factors and can sit on the shelf for years. The perception is often that too many resources, time, and political energy have already been invested to go back and re-evaluate the need or scope of the project. However, the context for transportation decisionmaking may have changed since the project was developed. The emphasis on livability factors, the need to obtain multiple benefits from investments in aging infrastructure, and long term transportation funding challenges can require that planners re-evaluate projects to ensure that they still align with the community vision, or can be modified to incorporate additional livability factors.

This re-evaluation step can also help to identify smaller scale, cost-effective modifications (e.g. streetscape improvements to enhance walkability) for projects that can have big impacts on livable community goals. The project development stage can be an opportunity to incorporate new elements into project designs. Conversely, it is also important at this stage to make sure that smaller scale elements such as incorporating bike lanes or landscaping to enhance the pedestrian environment are not removed from the final design of a roadway project in an effort to cut costs. These types of infrastructure elements provide added benefits relative to livable community goals.

8 Implementation and Systems Operations

Key Strategies for Addressing Livability Objectives in Implementation and M&O

- ✓ Work with new partners, including the private sector, on implementation and funding issues .
- ✓ Bundle multiple projects that support livable communities to pursue major grant opportunities.
- ✓ Revisit local transportation funding policies to assess how well they do or do not support livability principles.
- ✓ Identify value capture opportunities.
- ✓ Use management and operations strategies to support livability objectives.

The transportation decisionmaking process is designed to help build consensus for projects so that by the time they are ready for implementation, there is broad community support and funding available. Motivating decisionmakers and citizens to pass a special tax referendum for a new transit system, critical roadway connections, or other projects that support livable communities is more likely when the community vision is clear and well understood by the general public and elected officials. When people have clarity about how a particular project will benefit them personally, they are more likely to support implementation and long term management and operations.

Sometimes, even when there is consensus about a project, implementation can often be stalled due to a lack of funding, or funding delays. One way to address funding shortfalls is to bring new monies to the table. As noted in previous chapters, planning for livable communities requires bringing multiple partners into the transportation planning process. With multiple partners comes the opportunity for more creative approaches to funding. For example, engaging private sector interests in transit and corridor planning projects can help identify improvements that provide mobility and access that the private sector is willing to help pay for. This is especially true if the private developer can reap some additional value out of their property by incorporating livability design principles at the site planning scale. For instance, if a developer is given a density bonus to build more housing or commercial space within a TOD area, they might also be willing to fund new streets to create shorter block sizes, and adjacent streetscape and intersection improvements to encourage more walking, biking, and transit access. Corridor planning can help coordinate private developer investments in building a parallel local street network, while using limited public investments to 'connect the dots'.

Another approach is to seek opportunities to bundle several projects that provide multiple livability benefits in pursuit of major grant opportunities. The HUD Sustainable Community Grant program and other combined HUD-DOT programs encourage this type of approach. They seek to fund projects that demonstrate livability benefits such as access to affordable housing, increasing transportation choices and economic competiveness. This place-based approach can help planners identify the full range of Federal, State, local or private sector resources that can be focused on project implementation. These might include housing (affordable housing and community development block grant funding), environmental (brownfield, water and sewer grants), economic (private sector partnerships), and transportation resources (flexing existing sources for full range of multimodal choices).

Another strategy is to revisit local and State transportation funding policies to assess how well they do or do not support livability principles. For instance, impact fees are a common tool used by many communities to fund transportation projects. However, many impact fee programs are limited in terms of how those dollars can be used, and may be allocated only to new roadway capacity projects. An alternative strategy might involve replacing impact fees with mobility or transportation district fees that would allow the local government more flexibility to use dollars to expand transit, walking and biking networks, or fund the long term operating costs of a new bus line. This approach can also be used to help create incentives for the private sector to create more smart growth development patterns. For instance, mobility fees could be indexed to VMT, or fee waivers could be used for projects that support TOD. Using livability factors to reassess transportation funding is one way to break down implementation barriers, while identifying ways to encourage the private sector to advance livability in project design.

Photograph of roadway under construction for a green streets project in Arlington, Virginia. Project includes pedestrian intersection improvements and the creation of a bio-retention swale in the median. This project is part of the county's Neighborhood Conservation Program which directly engages citizens in identifying project scope and needs within their neighborhoods and prioritizing projects annually.

Funding new construction and long range operating costs can be supported by identifying value capture opportunities where new transportation investment can be tied to increases in property values and associated tax revenues. This linkage can help to build support for using those additional revenues to reinvest in existing facilities – whether by funding transit operating costs or funding long term enhancements for bicycle and pedestrian infrastructure as new development comes online.

Implementing smart growth principles in support of livability has been shown to have long term benefits on property values. A recent US EPA report, "Market Acceptance of Smart Growth," documents numerous case studies of master planned communities to illustrate this point. The report compared resale data from 18 smart growth developments and 18 conventional suburban developments across the US to contrast their appreciation between 1998 and 2004. The results showed consumer acceptance of smart growth projects based on long-term housing values. Housing units in these developments not only hold their value over time, but in more cases than not, buyers are willing to pay a premium to live in these projects over other competitive suburban housing units in the same market.

In addition to project implementation and funding, livability principles can also be advanced through management and operations (M&O) strategies. For example, signal timing plans can incorporate transit priority while also helping to improve mobility that balances vehicular and bus traffic, pedestrians, and bicycle access, supporting community vitality, safety, and the

environment. The emerging integration of urban design and context-sensitive roadway design can also help improve both vehicular operations and multimodal choice and access. Examples include boulevard designs for major roads, with separate through lanes and local access lanes, bicycle, and pedestrian facilities; re-purposing of excess lanes for separated 'bicycle tracks' and pedestrian plazas, and use of roundabouts to improve vehicle traffic flow, safety, and pedestrian access, while enhancing aesthetics and reducing emissions.

M&O strategies can support livability and sustainability at multiple scales through several means. These include:

- Replacing signalized intersections with roundabouts to help reduce travel delay and emissions while creating more context-sensitive, slower travel speeds.
- Designing signal systems to prioritize transit and emergency vehicles.
- Implementing countdown and audible pedestrian signals to enhance pedestrian accessibility and comfort.
- Prioritizing travel demand on regional highway systems during daily peak traffic conditions through congestion pricing, electronic payment/tolls, and managed lanes.
- Managing travel demand through electronic signage or traveler messaging systems in response to specific events such as construction work zones, traffic accidents, special event coordination and emergency response.
- Enhancing connections between different forms of transportation through transit fleet management techniques (including Automatic Vehicle Location and dispatching) to maintain bus flows at intermodal stations; establishing programs such as bike-sharing and ridesharing, and providing bicycle racks on buses.
- Coordinating regional carpool, vanpool, and on-demand rural transit with web-based info and scheduling systems, linked to scheduled urban transit service.
- Implementing community programs such as traffic speed monitoring and traffic calming to reduce noise and improve safety for bicyclists and pedestrians in residential and commercial areas.
- Developing safe routes to school programs to include elements like walking school buses that not only encourage walking, but also get parents actively involved in managing the transportation systems in their own neighborhoods.
- Improving policy and communication integration of transportation system management across State and regional levels to enhance customer service through means such as implementation of ITS architecture to ensure that different transportation technologies (i.e. traffic signals, and travel messaging displays) can communicate.

In the long term, fully integrated transportation finance and billing systems could allow customers in any system to use a single-payer card for all transportation-related expenses including vehicle fuel and maintenance, bike maintenance, pay-as-you-drive insurance, tolls, transit, parking, car-share and bike-sharing rental, and taxis. Tax-deductible and employer subsidies could be automatically credited to cards, with graphs on monthly bills showing comparisons of cost per mode against prior month and year, like those on utility service bills. The summary data would allow regional system operators and policymakers to track usage, determine cost-effectiveness of investments, and plan system improvements.

9 Monitoring System Performance

How have we made progress towards our long term livability goals? If we are going to vote for a renewal of the tax referendum on transportation, how do we know if the dollars are getting spent in the right way? Monitoring and evaluating transportation system performance against livability goals is essential. It not only helps inform decisions about maintaining and enhancing the transportation system, but it also can provide information to constituents about whether their tax dollars are being used wisely.

Tracking transportation system performance can take on many forms and occur over different time horizons. It can include providing real time information to transit riders by letting them know whether their bus or train is arriving on time, or monitoring how much fuel, productivity, and time is lost in congestion. Longer term system monitoring is equally important for livability; this involves tracking performance relative to community change. Goals such as reducing VMT or increasing transit accessibility result from long term incremental changes in both land use and transportation systems. Monitoring against livability goals requires setting up the process for regularly gathering data and analyzing information that quantifies progress.

Within the transportation sector, much of this data is readily available, but it might require summarizing and analyzing it in different ways. For instance, many communities monitor congestion levels through annually collecting traffic counts on major roadways. This data can provide information relative to average VMT and congestion levels in a given year, but can be expanded to include other livability-related measures. These can include measures such as the number of new miles of bikeways or sidewalks, or the percent of bicycle and pedestrian improvement projects completed near an affordable housing project or a community redevelopment area (see MARC annual performance report in chapter 6). They can also measure data related to freight system performance that would improve livability, such as percent increase in goods moved by rail.

Key Strategies for Addressing Livability Objectives in Performance Measures

- ✓ Track system performance against livability indicators across multiple time horizons
- ✓ Set up a process for regularly gathering data and analyzing information that quantifies progress on livability goals
- ✓ Prepare regular performance reports targeted to the public and policymakers relative to achieving livability objectives

Bike Walk Twin Cities is one of four pilot programs funded by the 2005 Federal transportation funding authorization (SAFETEA-LU) and is administered by Transit for Livable Communities for the greater Minneapolis/St. Paul area. The program provides information to practitioners and the public on the 5 E's of engineering, education, enforcement, encouragement, and evaluation. Their annual reports describe progress on engineering projects, identify observed trends in biking and walking activity related to those projects and other encouragement efforts, and are helping to build a transferable database on information such as seasonal and weather-related effects on biking and walking.

Gathering, analyzing and synthesizing livability-related data can also be aided by interagency agreements to share information. With housing partners at the table, transportation agencies can begin incorporating annual information concerning housing affordability, employment,

poverty, and homelessness, and geographically relating those to transportation system performance. Likewise, if the regional vision requires changes to local land use plans and policies, the transportation agency can help monitor progress on this update process. Establishing livability indicators and performance targets against those indicators early in the transportation decisionmaking process creates the framework for long term performance monitoring.

Annual Performance Monitoring
The Minnesota DOT gathers data and summarizes performance against ten Statewide Plan transportation policies to help identify investment needs and priorities, track progress toward achieving results, and calculate future fiscal needs to meet performance targets. One of the major policy areas tracks progress on statewide Community Livability indicators.

This data can then be used to help communicate the benefits of livability on a regular basis. Livability indicator reports are especially helpful for elected officials to regularly communicate progress on achieving quality of life goals to their constituents. This regular monitoring and communications loop helps to reinforce support for the community vision and ultimately the policymaker support needed to continue funding or support livability projects.

White Flint, Maryland Travel Demand Monitoring
The White Flint Sector Plan encompasses a 430-acre suburban employment center oriented toward the White Flint Metrorail Station in Montgomery County, MD. The County Council adopted a 2009 Sector Plan that will transform White Flint into a more urban, 24-hour activity center. The Plan's implementation process includes replacing traditional, site-specific traffic impact studies with an alternative review procedure that includes a special taxing district and a three-tiered staging plan. Rather than exacting incremental transportation improvements from each development, the special taxing district funds will be used to implement a robust local street network, reconstruct auto-oriented MD 355 to incorporate bus priority treatments, and initiate an area-wide transportation monitoring program that measures progress toward achieving shifts in commuting mode share goals.

Today, three out of four employees who work in the plan area drive to work. The goal is to achieve 50% mode share for non-auto trips – meaning more than half of the employees are getting to work by means other than an automobile. Incremental progress towards this goal is monitored by the Montgomery County Commuter Services through biennial surveys. The County has made the approval of subsequent phases of development contingent upon continued progress towards these goals. This monitoring strategy has already been used successfully in Montgomery County to coordinate public and private investment in the Bethesda Central Business District (CBD). Increasing the percentage of work trips made by walking, biking or transit is a major indicator of livability in this context. Increasing density and diversity of land uses (e.g. clustering multiple destinations closer together) and implementing physical and programmatic public transportation improvements to encourage commuters to change their travel behavior will ultimately help to create a more livable community.

10 Summary

Multimodal infrastructure improvements implemented in concert with downtown revitalization efforts in Kirkland, Washington.

The existing transportation decisionmaking process can support livable community outcomes; and many highly successful projects have been developed under a conventional process. At the same time, new approaches and tools are available to bring a broader range of issues into the process, while better integrating transportation plans with related housing, environmental, and economic development processes. This integration can actually save time and money – for both agencies and the public – while producing more cost-effective outcomes. It can leverage place-based policies and investments to advance more livable community outcomes. It requires developing performance based planning approaches that can clearly demonstrate progress on key livability indicators and defining success through measurement of outcomes. While based on conventional approaches, incorporating livability principles requires a broader set of goals, while bringing multiple partners into the development of transportation plans and projects that may not have been involved before. Some of the ways to accomplish this include:

Create partnerships. Livability solutions require input from a wider range of agencies and interests than have traditionally been involved in transportation planning. Reaching out to local planners, economic development groups, housing agencies, public health agencies, disability rights organizations, resource agencies, emergency management, businesses, landowners, and other community groups is the first step in developing effective, integrated solutions.

Consider the full range of options. Supporting livability outcomes through the transportation planning process is not just about implementing capital improvement projects. It also includes developing interdisciplinary policies, building new coalitions, and efforts to shift agency culture to think more holistically.

Use words that resonate locally. Drawing on locally accepted 'brand names' to foster widespread participation, livability concepts can easily be incorporated into discussion of a comprehensive vision, integrated multimodal plan, and coordinated implementation. Framing livability strategies as cost-effective, phased implementation of a broader long-term vision can help generate support from the public and policymakers.

Take a multimodal perspective. Maximizing the capacity and efficiency of existing transportation system investments is a key livability strategy. This can often be accomplished by

‘completing and connecting’ the multimodal network with relatively smaller incremental investments in pedestrian, bicycle, and transit access improvements – as well as local roadway connections.

Balance priorities. Recognizing the range of users and how their demands on the system vary – by mode, time of day, purpose, season, incidents and events – can help to plan and manage the system to balance competing priorities.

Recognize and emphasize broader benefits of livability. Emphasizing the range of benefits associated with livability initiatives can help planners, decisionmakers, and the public to understand their role in creating better communities.

Pick a project; pick a place. Working together on a single project in a specific place – an intersection improvement, neighborhood plan, access to a school or recreation site, regional vision, or corridor plan – can be the best way to start incorporating livability strategies into transportation agency initiatives.

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