TransitCenter

All Transportation is Local

A Field Guide for City Leaders

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As an elected official, you hear from your residents about transportation all the time.

Your constituents complain about rush-hour congestion or about inadequate bus service. They're annoyed by cut-through traffic driving too fast on residential streets, and they worry about children being able to walk to school safely. They have lots of opinions about parking, potholes, cracked sidewalks and thousands of other transportation-related topics.

Despite transportation's importance to your constituents, you—like many other local leaders—may feel there's little that can be done about it. You may have been told that state or federal action outweighs local action, and that transportation infrastructure is the province of higher levels of government.

But that impression is wrong. Local officials have more influence over transportation than even they think they do. Memphis, Chicago, and many other municipalities are using "quick-build" techniques to reconfigure dangerous intersections quickly, instead of accepting traffic deaths as inevitable. Denver; Cambridge, Massachusetts; and cities around the country are changing their zoning and development codes so they can keep growing without huge increases in car traffic. Oakland is targeting transportation investments to make it easier for children to walk to school, while Seattle strategically uses its dollars to expedite buses through existing bottlenecks.

Local leaders in those places have recognized that **transportation is intrinsically linked to broader values** that matter to citizens like economic growth, equity, public health, and safety. They also recognize that **local government has immense power over transportation**, because it controls how the street is used and how new development connects with transportation systems.

While conventional wisdom casts transportation as a second-tier issue in terms of public interest, it has huge bearing on a city's success and on issues of fairness, prosperity, and safety. When transportation accomplishments are linked to these broad issues, they not only improve the city but help leaders win

acclaim. Local leaders like Charlotte's Anthony Foxx, Denver's John Hickenlooper, and New York's Michael Bloomberg used transportation successes to grow their reputations. More mayors are doing so today.

This handbook outlines practical steps that local elected officials can take right away to improve their transportation systems and make their cities better places to live, work, and visit. This how-to guide has four sections. **"How to Make the Most of Your Time in Office"** and **"Alliances That Get Results"** deal with the human dimensions of leadership, and **"Make the Most of Your Infrastructure"** and **"Rewrite the Rules to Boost Growth, Not Traffic"** deal with the physical and policy dimensions. No single formula fits every single jurisdiction, so elements from each of these sections can be selected as appropriate to your own circumstances. The important part is to find the combination of recommendations that work best for you and your residents.

Policy Impacts

Many American cities have been optimized for car use. Decades-old street and development standards make it hard to build walkable, transit-friendly "Main Street" neighborhoods. This worsens traffic, depresses the tax base, and makes the city less accessible.


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To fix this, cities are modernizing development requirements so that new growth creates places that are more walkable and transit-accessible.

Quick-build or tactical techniques can rapidly transform excess street space or underused parking into space for people.


Allowing shared parking for complimentary uses (like an office that's busy during the day and a restaurant that's busy at night) saves space.
Development standards can be updated so new buildings don't overbuild parking and instead support a walkable environment.

Cities are getting the most out of their infrastructure by re-purposing street space for transit and other transportation options.

Change happens faster when city leaders win over civic groups, advocates, and neighborhood leaders.

Their leaders are moving quickly, explaining how transportation changes achieve city goals (like safety), and working with community allies and transit agencies.

In thriving, busy neighborhoods, cities are using active management tools—like curb management, parking pricing, and transportation options campaigns—to balance competing demands for street space and keep everyone moving.

Loading zones allow deliveries to happen more smoothly in busy neighborhoods.

Bus bulb-outs and sidewalk extensions make it safer to cross the street and speed up transit service.

Parking becomes easier with effective management (like lowering the price of parking off-street and raising it for high-demand curb spots).

Campaigns and incentives encourage workers, residents, and visitors to use transportation options.

Streets can be redesigned with bicycle, bus, and pedestrian priority measures to move more people and function better as public space.

TransitCenter is a foundation that works to improve urban mobility. We believe that fresh thinking can change the transportation landscape and improve the overall livability of cities. We commission and conduct research, convene events, and produce publications that inform and improve public transit and urban transportation.

For more information,
please visit www.transitcenter.org.

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How to Make the Most of Your Time in Office


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How to Make the Most of Your Time in Office

One of the most important choices a city makes is hiring the right leaders for its transportation department. The most successful leaders link transportation to broader values — such as safety and public health — and make sure those values are incorporated into the city's transportation projects, standards, and metrics. They convince their departments to move fast, try new things, and measure progress in new ways.

1. **Hire the right people — and empower them to move fast**
2. **Pair strategic planning with action**
3. **Use quick-build street design**
4. **Measure progress toward strategic goals**

1. Hire the right people — and empower them to move fast

One of the most important things you can do as an elected leader is to hire the right transportation leaders: People who aren't just productive and knowledgeable, but who will work quickly and boldly, and talk about transportation in ways that excite the public. Without strong management working for you, you may find that a recalcitrant bureaucracy makes your term in office frustrating to you and non-responsive to your constituents.

What qualities should you look for in a manager to lead your transportation agenda? Formal credentials and transportation experience can be useful, but they are not the most important indicator of a manager's potential success. Sometimes the most important thing a transportation leader can do is to question conventional wisdom and create new ways of doing things. Look for a transportation staff leader who:

Understands how transportation influences your city's economy and quality of life

Transportation doesn't exist for its own sake, but to serve residents, workers, and visitors. Fundamentally, transportation is about access: How easy is it for citizens to access jobs, schools, groceries, and hospitals? Can they get to religious services, visit friends, and participate in their community?

If your city is one where most destinations can be accessed only by private car, many of your citizens will be shut out. A city that provides choices, allowing access via transit, walking, and biking, is a city that works better for everyone.

Your residents also want to breathe clean air, and their children to be able to walk to school, and for senior citizens to safely cross the street. And your city's bottom line will be stronger if you build vibrant shopping districts where people can walk to a variety of stores — not strip malls that maroon retail activity on an ocean of parking lots.

In other words, your transportation director should consider herself or himself part of your city's agenda for public health, safety, economic vitality, and quality of life.

Makes connections within and across departments

A good transportation leader grasps the connections between transportation and economic development and public health and pollution, and instinctively makes alliances with other agencies, residents and civic groups focused on those issues. Such leaders will have a knack for reaching out to the parks and recreation department to ensure that on-street bike paths connect to trails in parks, for proactively addressing how the state highway department's off-ramps affect your local streets, and for working hand-in-hand with your transit agency so that bus routes get signal priority and bus stops have good sidewalks.

She or he also needs to be someone you can rely on to represent you with neighborhood associations or merchants' groups, and explain the necessary trade-offs among different perceived needs.

Transportation agencies are historically rife with specialization: planners, engineers, designers, forecasters, modelers. What you need in a management leader is a "systems thinker" who is conversant in all those fields, but not partial to any single one of them.

Finally, at a time when transportation practice is changing rapidly, it's useful for today's transportation leaders to look beyond local precedent. That means you and your staff should connect with peers elsewhere. You can join networks like the National Association of City Transportation Officials, a league of local leaders; Transportation for America, an organization of public and private entities dedicated to new transportation policies, or Strong Towns, an organization focused on improving the return on public investments at the local level.

Is action-oriented

Transportation can feel slow to change, since it often involves slow-moving capital projects. But local leaders can do a lot in shorter timeframes. They can change development policy so that new buildings support walkability and multiple transportation options. They can use quick-build techniques to reconfigure streets quickly. And they can hold Open Streets events and run campaigns that teach people about transportation options. (Elsewhere in this guide, see sheets on how to "Design walkable, transit-friendly neighborhoods," "Use quick-build street design," and "Lead targeted marketing campaigns and community events.")

One defining characteristic of entrepreneurial leaders is that they are guided by a one- to two-year *action plan*, not just the

10- and 25-year "long-range plans" that are required as part of the transportation process. At their worse, long-range planning exercises can be an evasion of the accountability that comes with getting something done today. If your staff is proposing to do a 50-year plan, ask them whether they are going to be around in 50 years to be judged.

If you truly want transportation change, you need to give your staff license to experiment and take on many projects at once. This means standing behind them when a project proves controversial. Remember, new approaches are needed in transportation, and you are going to get that only if you empower your staff to do more than the same-old, same-old.

Knows where to find money—and is focused on spending it well

Effective transportation directors won't claim that more money is the only answer to every problem. Instead, they'll aim to get better performance out of the limited road network you have. Especially in busy neighborhoods, they may mean redeploying road space to speed up transit and make it easier to walk and bike. Using performance measures to achieve the greatest return on investment is key to this discipline.

They'll also understand that preventative maintenance today saves the cost of more extensive repairs tomorrow. One powerful question for an elected official to ask a transportation agency is, "Do you have a 'fix it first' policy that prioritizes road maintenance over road expansion?"

Finally, your transportation leader should understand the broad menu of federal, state, and local transportation funding sources that exist, and how to use them creatively. (More detail on this is included in the "Work with (or around) state government" sheet.)

The relationship between elected officials and agency staff is key to getting things done. To have the right relationship, you as the elected official have to recruit and empower the right people to work for you — and for the taxpaying residents who you and the staff serve.

Resources

TransitCenter's 2015 *A People's History of Recent Urban Transportation Innovation* report describes how Chicago transportation commissioner Gabe Klein, New York City commissioner Janette Sadik-Khan, and other public agency leaders made change happen quickly.

Transportation for America (www.t4america.org) - This national alliance, aimed at spreading knowledge of locally driven transportation solutions (and advocating for federal policies that enable them) includes municipalities, regional planning groups, and business organizations.

National Association of City Transportation Officials (www.nacto.org) - This association of over 50 cities and transit agencies offers best practices from cities around the country. It is best known for its guidance on street design, but also offers guidance on emerging mobility modes and other transportation issues.

Strong Towns (www.strongtowns.org) - This nonprofit and membership association explains how traditional, walkable "Main Street" neighborhoods tend to provide greater return on investment than car-oriented, big-box and strip-mall development. Primarily aimed at small towns and medium-sized cities, it advocates for incremental development that is fiscally sound.

Agency structure and reporting relationships play a role

Different cities organize their transportation activities in different ways. Some have transportation departments, others have public works departments, and some have different offices for managing automobile parking and regulating taxis. Nimble, change-oriented transportation leadership is easier when there is clear and focused responsibility for transportation in the government.

Policy changes may happen faster when the city has a transportation department, instead of a public works department with responsibility for many kinds of infrastructure like sewers and water pipes. One of Oakland, CA, Mayor Libby Schaaf's first moves after her election in 2015 was the creation of the city's first Department of Transportation. Most of the new

department's workers were existing public works personnel, but she brought in strong leadership at the top to carry out her vision for safer streets that give Oaklanders multiple transportation choices, and help low-income residents access jobs and services.

It also makes sense to closely align the leadership of departments that control municipal streets and municipal parking lots, if these exist.

Strong leaders can accomplish change in a variety of agency structures, and restructuring will not lead to better outcomes if agency leadership is not dynamic. The key conceptual leap is that transportation is about *more than infrastructure*. You need a group of professionals who understand the human dimensions of transportation, including finance and planning, not only its physical dimensions such as engineering and construction.

I worked for two strong mayors that wanted innovation at almost all cost. The most important thing they did was to have my back. They gave me a lot of rope—sure, almost enough to hang myself with. What that enabled was lot of controlled experimentation, where you set the expectation with the public that you're going to try some things.

Gabe Klein, former transportation director
of Washington, DC and Chicago

2. Pair strategic planning with action

One of the abiding structural issues that Mayors and other executives responsible for cities and towns face is that traditional time frames for transportation improvements can be many years, if not decades. A new generation of leaders has refused to accept this as an inevitable problem, however, and has begun to show how to achieve tangible, visible transportation results within a single term of office.

Change-oriented transportation leaders begin their tenures with strategic plans to communicate a vision (often one that demonstrates how transportation projects achieve safety, public health, equity, economic growth, or other city objectives) paired with very specific goals and assignments of responsibility for improvements that can be accomplished within a few years. These plans have emphasized new mobility facilities, like bus and bike lanes, and reclaiming some paved areas as public space. More recently, Vision Zero traffic-safety policies have created additional urgency for change in America's urban streetscapes. Vision Zero commits cities to continual improvement in safety performance, measured in the basic metrics of traffic fatalities and crashes.

Mayoral transportation action plans generally require these components

- **Goals and benchmarks:** A seminal example is New York's PlaNYC 2007 sustainability program. Its descriptions of new policy directions in a variety of areas were accompanied by a detailed matrix of goals and implementation milestones that held specific agencies accountable within clear time frames. Building on that, the NYC Department of Transportation's *Sustainable Streets* plan broke PlaNYC's large-scale goals down into detailed street-improvement programs assigned to specific units within the agency, with numerical targets for implementation of projects in specific time frames. More recently, the new Oakland Department of Transportation and the administration of Mayor Ed Murray in Seattle have issued action-oriented plans with clear goals for implementing street improvements and transit service. In the Oakland DOT's 2016 Strategic Action Plan, the agency divides its goals into actionable one- and three-year benchmarks.

- **Streamlining procedures.** Actionable change may require leaders to shift at least parts of transportation or public works agencies from ponderous capital-construction orientations to the delivery of improvements in annual or even shorter project cycles, which requires that you establish clear goals and lines of accountability. The Oakland Department of Transportation has committed to establishing a quick project-delivery pipeline for bicycle lanes, including an on-call striping contract and in-house capacity for quick and efficient construction of striping-only projects. Seattle's 10-Year Strategic Vision for Transportation also lays out agency goals and breaks them into three- and ten-year deliverables. In order to meet the demand for street improvements, they are rethinking project delivery by using "interim" solutions within a two-year time frame from a project's conception. The plan also contains an illustrated guide for moving from plan to project. (See our strategy sheet "Use quick-build street design" for project techniques.)

- **Technological fixes, where appropriate.** Bus transit is one arena in which quick technological fixes can make a significant difference within short time horizons. In Seattle, the city plans to update its traffic-signal policies within the next year to reduce bus delay in major corridors. Over the next three years, the Oakland DOT will be supporting AC Transit, the bus operator for Oakland and neighboring cities, in exploring new fare technologies, connected buses, and automated bus-lane enforcement, all of which speed up bus travel times.

1. One-year benchmarks from the Oakland Department of Transportation's 2016 Strategic Plan.

	1-year benchmarks
8. Create Complete Streets corridor program	
Develop and adopt corridor-level plans that incorporate transit, biking and walking improvements	• Conclude and implement Complete Street Design Guidelines with policy guidance on mode shift goals • Begin scoping of corridor-level planning efforts in coordination with ACTC's and AC Transit's Major Corridors efforts • Designate a cross-functional project development team
Deliver Complete Streets	• Establish a project development and delivery process for Complete Streets projects
9. Plan and implement fast, frequent and reliable transit	
Plan and implement great transit options for Oakland	• Establish a transit action plan and begin incorporating transit projects into the City of Oakland's CIP • Identify and develop a transit development team to shepherd long-range transit vision and liaise with transit agencies • Complete design on International Boulevard BRT project and issue construction permits to AC Transit • Begin planning, environmental scoping, \and fundraising for additional BRT corridors
Improve and maintain Oakland streets and signals for efficient, reliable transit operations	• Establish an expedited curb change process for transit operators • Identify "quick win" improvements for transit speed and reliability • Proactively include AC Transit in discussions regarding development of priorities for city's traffic signal management program, especially as it relates to the development of the 2017-19 city budget/capital improvement programs • Update traffic signal policies to reduce signal delay on major transit corridors

Examples of municipal strategic and action plans

PlaNYC (New York City, 2007) — Citywide sustainability plan that goes beyond transportation.
Sustainable Streets (New York City, 2008)
Chicago Forward (Chicago, 2012)
Move Seattle (Seattle, 2015)
OakDOT Strategic Plan (Oakland, 2016)
Vision Zero Boston (Boston, 2015)
Vision Zero San Francisco (San Francisco, 2015)

3. Use quick-build street design

Some transportation infrastructure projects are hard to change, like freeways and rail lines. But streets have proven to be quickly amenable to the creation of public plazas, dedicated bus lanes, pedestrian safety features and protected bike lanes—as long as cities or towns have established programs for planning and acting quickly. American cities are increasingly creating fast-acting transportation teams by pairing street designers with the operational units or contractors who manage cities' street resurfacing, pavement marking and traffic signal operations. This combination has allowed cities to redefine the geometries of city streets in desired ways within months, rather than the years or decades that traditional approaches to municipal construction required. Streets where the new designs are working well can be rebuilt with more durable materials over time.

City departments charged by leaders to pick up the pace of change on urban streets should consider:

Institutionalized urgency

City departments have to give themselves hard deadlines to put the "quick" in "quick-build." In cold-weather cities, a logical deadline is often the first snowfall. In other cities, it can be defined by the repaving schedule or a mayoral pledge. The development of clear goals and a pro-active mission for the agency should generally accompany this approach to street work -- see our "Pair strategic planning with action" sheet.

A reliable (but unconventional) funding strategy

Many transportation projects are funded through state and federal grants. These are slow, cumbersome processes. For quick-build projects, cities often have to get creative. Many cities have budget line items for street markings and signals that can contribute to these projects. In Austin, city infrastructure bond funds are used for quick-build. And in Chicago, property tax increment financing and money from sponsors of the city-owned bikeshare system have been used to make improvements. Once a steady pipeline of projects has been created within enduring quick-build programs, it can become easier to link them to the older and larger funding sources more commonly associated with heavy construction.

Contracting

Traditional government procurement is so slow that it's often impossible to take work quickly from conception to implementation, even if a city knows how to accomplish the project. For quick-build projects, an essential component is linking street-design functions to a city's traffic-operation groups that manage pavement markings and traffic signals. Whether they are staffed within city government or largely work through contractors, these are the units that can reshape a street with lane markings or moveable objects such as heavy planters, while managing traffic flow with timing and turning strategies. If most of this work is done by contractors, on-call contracts for markings and related work are needed to avoid every street-design project being put through the slow process of competitive bidding. Some cities add in-house or contracted concrete-pouring units to add physicality through features like pedestrian islands, sidewalk extensions, or bus bulbs to quick-build projects (where this can be done without affecting costly subsurface systems like drainage).

Outreach and communications plan

Some cities that develop robust pipelines of quick-build projects come up against limited public outreach capacity. In these cases a city has created so much capacity for change that it is no longer equipped to effectively communicate with sufficient numbers of stakeholders in a broad array of districts and neighborhoods about potential street design changes. Quick-build projects themselves can act as public "beta tests," because their implementation with temporary materials allows for adjustment or wholesale change later based on public feedback (in contrast to a project "set in stone" via heavy construction). This can, however, cut both ways, as constituents may feel there is too much change too quickly. It is crucial that communication capacity is developed alongside the quick build program itself. Project designers are not always the best spokespeople for a project. Having community relations and communication specialists who can represent the vision, policies, and rationale for specific projects in clear terms is essential for city leaders who wish to see change happen quickly.

Examples

- Memphis's MEMFix program began in 2010 with unique grassroots origins. Citizens petitioned the city to install temporary traffic calming measures on a disinvested, high potential commercial street. It was such a success that the City institutionalized the process and now uses the citizen-led mechanism for traffic safety improvements and public spaces.
- NYC DOT has recently experimented with temporary bus boarding bulbs as part of their broader quick-build Select Bus Service program. The agency will be monitoring how the bulbs perform in all weather conditions to determine whether to expand their use.
- In 2017, AC Transit will debut a "stoplet" on a busy commercial corridor created using tactical techniques. Part parklet, part bus bulbout, it's a relatively low cost and quick delivery project that can easily be scaled agency-wide.
- SFMTA's Vision Zero intersection program pledges to redesign 24 dangerous intersections within two year's time using quick-build techniques. The agency's Muni Forward initiative also relies on a variety of near-term strategies to improve the speed and reliability of the transit system.

2. Memphis frequently uses quick-build techniques to improve safety and create more open space.

- Underutilized roadway has been transformed into public space throughout the United States using quick-build techniques. Perhaps the most famous of all tactical applications, the pedestrianization of Times Square originally used temporary materials such as epoxied gravel, flexible delineators and movable planters. Similar principles have been applied with tremendous success in places like Los Angeles, San Francisco and Boston.

Resources

For more examples from Austin, Denver, Seattle, New York, see People For Bikes' 2016 report *Quick Builds for Better Streets.*

New York City's *Street Design Manual* offers a toolbox of street redesign techniques and includes guidance on materials and furniture to use.

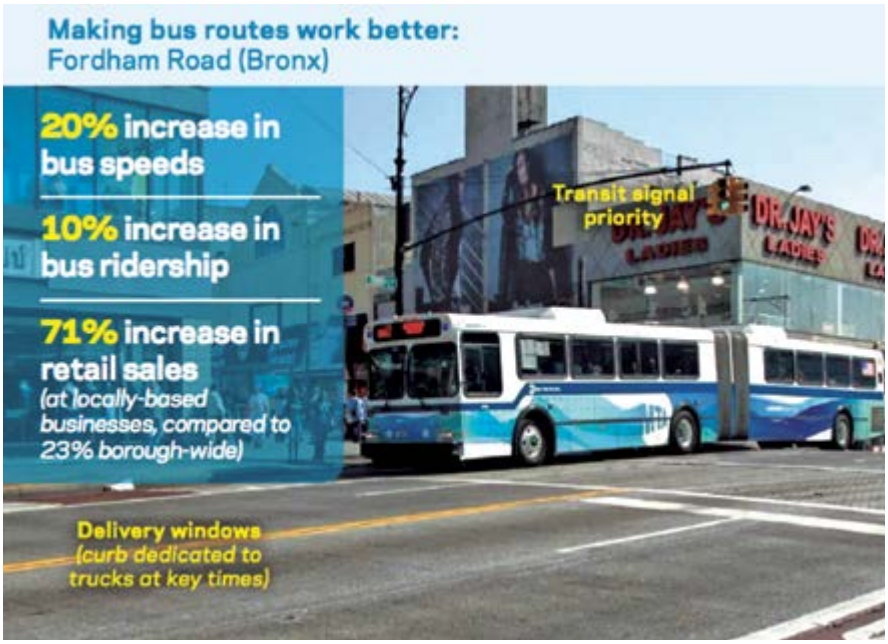
Tactical Urbanism, written by Mike Lydon and Anthony Garcia, offers case studies and a how-to guide for shorter-term "tactical urbanism" techniques that can be used to prototype street redesigns.

4. Measure progress toward strategic goals

Effective transportation departments have strategic plans that connect transportation to broader values, like safety and economic vitality. They also work quickly, carrying out quick-build and pilot projects and guided by action plans with year-by-year targets. (See our "Pair strategic planning with action" and "Use quick-build street design" sheets.)

These rapid changes can lead to political pushback. Effective performance measurement helps maintain the momentum and lets cities show how their projects are having an impact and achieving their goals. Consider:

3. Easily understandable metrics help elected officials and the public understand the benefit of projects that may be controversial. This illustration from the New York City Department of Transportation describes the benefits of a street redesign project in the Bronx.



Before-and-after monitoring of individual projects

Evaluating transit street projects involves comprehensively measuring how well the street works as a transportation corridor, but also how it works as a public place and as an investment.

Effective performance measurement means measuring the "whole picture," going beyond traditional transportation metrics that focus on vehicle delay. (See examples above.)

The *Transit Street Design Guide* by the National Association of City Transportation Officials suggests that cities should track the number of people moved in the corridor, mode split (how people are choosing to get around) and vehicle miles traveled (whether people are driving more or less), accessibility, safety, quality of public space, health, sustainability, and economic productivity.

Goal	Potential Metrics
Safety	Crashes and injuries for motorists, pedestians, and cyclists; Traffic speeds
Access/Mobility	Volume of vehicles, bus passengers, bicycle riders and user of public space Efficiency in parking/loading Traffic speeds
Economic Vitality	Number of businesses; employment Retail sales; visitor spending
Public Health	Minutes of physical activity per day Rates of obesity, asthma, diabetes, etc
Environmental Quality	Air quality; water quality Urban heat island; energy use
Livability/Quality of Life	User satisfaction Public space usage

Long-term measurement of neighborhood or city progress against strategic goals:

Many cities' strategic plans include specific goals tied to values like safety and equity. For example, San Francisco's 2013 strategic plan commits it to specific transit service improvements (reducing transit vehicle "bunching" and gaps in frequency). Departments need to regularly measure themselves against those goals.

The Vision Zero plans many cities have adopted have a very clear goal: by definition, these plans commit cities to reducing traffic fatalities to zero. The public can see that an increase in traffic deaths means failure and a decrease means success.

Examples and Resources

New York, NY

In 2013, the New York City Department of Transportation analyzed state retail sales tax filings to demonstrate that, in several cases, retail in corridors next to new bus lanes, plazas, and bike lanes outperformed comparable areas. The department also tracks traffic-safety statistics before and after street redesign, as well as traffic speeds, transit ridership, and bicycle counts, depending on the project.

- *The Economic Benefits of Sustainable Streets (www.nyc.gov/html/dot/downloads/pdf/dot-economic-benefits-of-sustainable-streets.pdf)*
- *Measuring the Street: New Metrics for 21st Century Streets (www.nyc.gov/html/dot/downloads/pdf/2012-10-measuring-the-street.pdf)*

Cambridge, MA

Since the 1990s, Cambridge has required that developers who build or expand parking also offer incentives for transit and non-automobile modes. Employers with more than 20 parking spaces also must regularly survey employees so that the city knows how employees are traveling to and from the city and whether the city is meeting its goal of reducing car traffic. This monitoring program has proved that Cambridge's car-light policy is working. Between 2000 and 2010, the Kendall Square neighborhood added 4.6 million square feet of development—which represents a 40% increase in commercial and institutional space—while during the same time period, automobile traffic fell on major streets by as much as 14%.

For more information about the Cambridge Parking and Transportation Demand Management Ordinance, visit www.cambridgema.gov/CDD/Transportation/fordevelopers/ptdm

Arlington, VA

This county outside Washington, DC, offers a comprehensive suite of "commuter services" programs that help employers set up programs to encourage transit use, provide information about biking and walking, and coordinate new development with transportation services. The county performs continuous research, the results of which are used to justify the existence of these programs—data show that they have reduced driving by about 40,000 daily trips (representing 640,000 vehicle miles traveled).

To learn more about Arlington's research efforts, read the 2011 Mobility Lab article "Research Elevates TDM to the Strategic Level" at mobilitylab.org/2011/06/20/research-elevates-tdm-to-the-strategic-level-in-arlington-county-virginia/

Cities like Beaverton are not confined to the auto-oriented streets we inherited from the 1950's and 1960's. But changing these to celebrate people rather than cars won't happen by itself; it requires vision and action. And not in a long-range plan, but this month and this year. Leaders of communities like Beaverton can hire dynamic leaders of their transportation departments, promote quick-build improvements and create two-year action plans to make transit more useful and create the communities they want.

Denny Doyle, Mayor of Beaverton, OR


Beaverton
TC
To Wilsonville

Alliances That Get Results


YES ON
M
THE LOS ANGELES COUNTY TRAFFIC IMPROVEMENT PLAN

Alliances That Get Results

Most successful transportation changes happen with the support of allies outside of government, like grassroots groups, civic leaders, and businesses and employers. Mayors also have to contend with their transit agency and state government.

1. **You may not run transit, but you can lead**
2. **Partner with employers**
3. **Work with (or around) state government**
4. **Work with civic leaders**

1. You may not run transit, but you can lead

Useful bus and train service supports development and economic growth, reduces the public health and environmental harms of transportation, and provides an affordable choice so that residents can access jobs and services without the expense of a private vehicle. Although most cities do not control their public transit agencies, they play a determining role in whether transit is effective because they govern the streets and they can influence agency actions via negotiation or though appointees to the transit agency board.

Transit becomes more useful to people when it is frequent, fast, and connects walkable neighborhoods

In order to attract riders who are willing to use transit for multiple purposes, transit must provide access to many destinations in a reasonable amount of time.

Frequency is crucial; when a bus or train runs at least every 10 to 15 minutes, potential riders can "show up and go" instead of needing to plan around a schedule. For a transit system, there is an inherent trade-off between running more frequent service on a smaller number of routes, and running less frequent service on a larger number of routes that cover more area. Running frequent service in walkable corridors builds ridership and makes transit more financially productive, while a "coverage" model extends service to more places but makes that service significantly less useful for most riders.

Also important is reducing travel time so that transit is competitive with alternatives. Opinion research confirms that transit riders value improvements to frequency and *travel time* over other improvements, and that the majority of transit riders walk to the stop (even if they own cars).

Other factors—like the quality of marketing or attractiveness of vehicles—are less important than these fundamentals.

Cities can make bus and train service more useful for citizens by using their power over street design to speed up transit, and by making it easier for people to walk to transit. They should:

- Prioritize transit on the street with transit-only lanes, sidewalk extensions, traffic signal changes, and other design features. (See "Design the street to move more people" sheet)

- Use zoning to concentrate development around transit corridors and ensure new development is comfortable to walk to and from. (See the "Design walkable, transit-friendly neighborhoods" sheet)

- Coordinate with transit agencies to install and improve shelters on heavily used routes. A bus shelter is not a luxury; it provides a basic level of comfort and dignity to people waiting for transit.

Although cities don't control how transit is deployed or designed, they should convince the transit agency through negotiation or their appointees on the transit agency board (see sidebar) to make other improvements to travel time, frequency, and walkability. Cities should:

- Support efforts to provide more frequent service in walkable corridors.

- Support efforts to speed up boarding—such as prepaid fares—and redesigns of bus routes that make them more direct and eliminate time-consuming deviations.

- Urge that new transit lines be built to connect walkable neighborhoods, not in corridors that are difficult to walk to (such as in the middle of a highway). Push for transit station design that is welcoming to the pedestrian, not suburban-style park-and-rides.

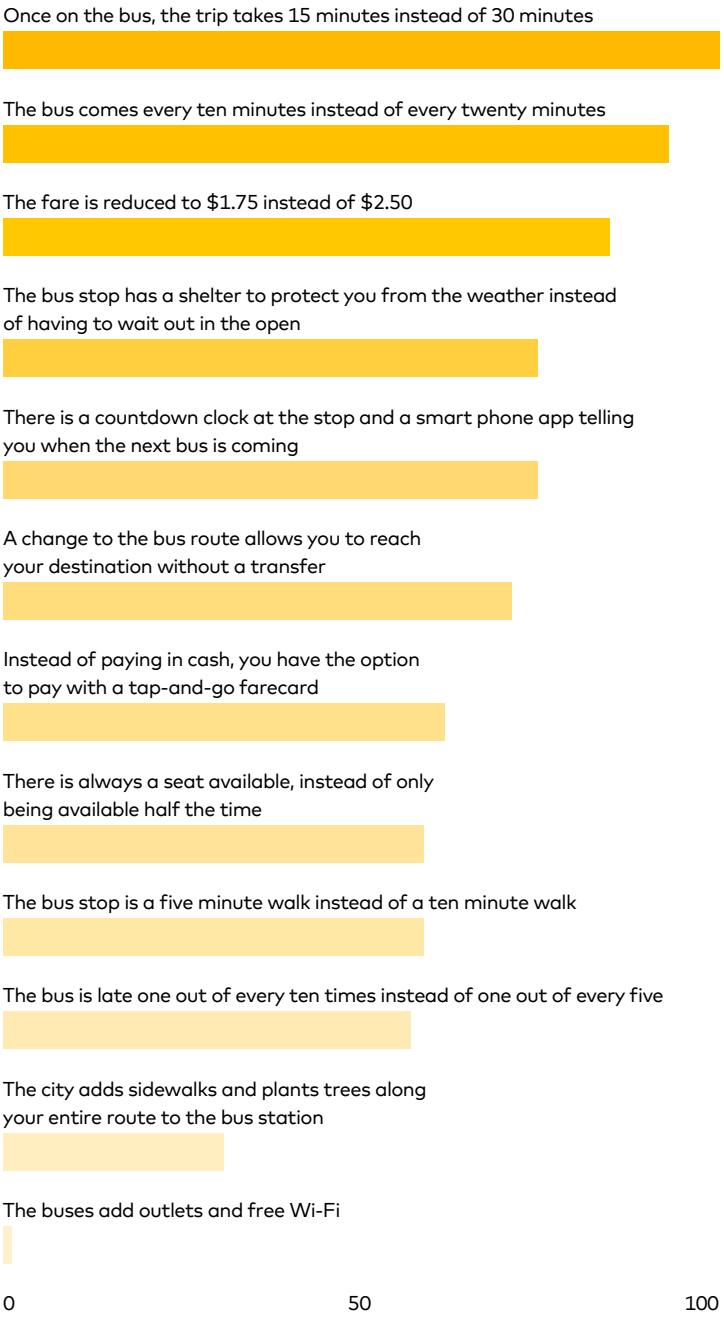
Many cities have forged strong working relationships with their transit agencies at both the staff and leadership levels:

- New York City's Department of Transportation has forged a strong relationship with the state-run Metropolitan Transportation Authority to create a pipeline of "Select Bus Service" projects that combine improved bus service (prepaid fares, limited stops, and high-capacity buses) with street and signal improvements that speed up bus service.

- Similarly, Seattle has worked closely with King County Metro to create a series of "RapidRide" corridors that combine frequent bus service and street improvements. In 2014, the city also asked voters to raise taxes to increase bus service—and won—and directed that money to increased KC Metro service on busy routes.

City leaders can use data to make their case as well. For example, advocates in Denver have long complained that the region's light-rail network primarily serves suburban commuters, and that urban transit service is lacking. In 2016, the city began a new transit needs study (Denver Moves: Transit) to quantify that problem and give itself a stronger hand in transit policy.

Relative Importance of Service Improvements



TransitCenter's *Who's On Board 2016* survey asked respondents to make tradeoffs between different transit improvements. Respondents valued improvements in frequency and travel time the most. Cities typically control some of these conditions.

The importance of transit agency board members

Cities that appoint members to a transit agency's board have important leverage over the agency's policies. When a city's appointees have a strong technical understanding of how transit works, they can push for wide-ranging improvements.

For example, Houston METRO board member Christof Spieler (an appointee of Houston Mayor Annise Parker and Mayor Sylvester Turner) was a bus and rail rider who frequently wrote about transit before being selected as a board member. His understanding of the importance of frequency led him to champion a restructuring of the agency's bus service that emphasized a high-frequency grid of service and better connections to rail stations and job centers outside of the historic downtown.

Spieler's knowledge of transit principles helped him convince other board members to support this "system reimagining," which brought frequent transit within walking distance of an additional half-million residents, increased ridership, and resulted in METRO receiving national recognition.

(Disclosure: Spieler became a board member of TransitCenter in 2016, though he was not affiliated with TransitCenter during the years described above.)

Resources

Who's On Board 2016: This TransitCenter report draws on survey data and focus groups from regions around the country to identify how people use transit and what makes transit useful to people. The report underscores the importance of providing service that is frequent, fast, and easy to access on foot.

Transit Street Design Guide: Published by the National Association of City Transportation Officials, this guide summarizes best practices and principles for transit network and route design, fare collection and boarding practices, and more, at a high level appropriate for municipal officials. It is an essential read for city transportation staff who want to understand how to use street design to improve public transit.

AllTransit (alltransit.cnt.org) — This online resource from the Center for Neighborhood Technology measures access to transit for every U.S. region with at least 100,000 residents. It shows local leaders where transit works best in their communities.

We take the perspective that Seattle DOT is a partner with the transit agency. For bus systems, that's really important. You really have to act as if you're one entity pursuing the same goal: Moving transit faster.

Scott Kubly, Director of Seattle Department of Transportation

2. Partner with employers

Transit and transportation have a major impact on businesses' customer and worker base, and employers care deeply about the issue. Smart Growth America's Core Values report—— based on research on nearly 500 companies that moved to downtown, transit-oriented neighborhoods between 2010 and 2015——found that moving downtown helped businesses attract talented workers, build company culture, be closer to customers and partners, and become better corporate citizens.

Employers can help you achieve your transportation goals by

Helping to advocate for a transportation vision. Business leaders can be crucial members of a coalition to support transit and walkable neighborhoods. Business organizations and individual employers have helped make the case for investments in transit in Indianapolis, Denver, Charlotte, and many other cities. (See our "Work with civic leaders" sheet for more.)

Making it easier for employees to get to work without a car. Large employers like medical centers and universities, which have thousands of employees converging on a single point at regular times, have a huge stake in transportation improvements that get their workforce to and from the job. They're often willing to provide free or reduced transit passes or preferential carpool parking in order to minimize the valuable real estate they would otherwise have to devote to storing employees' cars.

Employers can also band together through transportation management associations/organizations (TMAs/TMOs). Somewhat like a business improvement district, these groups are at least partly funded by member dues and can provide:

- Transportation information (for example, by helping individual employees learn about how to commute using transit);
- Privately operated or contracted shuttle service;
- Programs that encourage alternatives to driving alone.

The most effective TMAs go beyond service provision and help advocate for transportation changes in their neighborhoods. The 128 Business Council in suburban Boston helps local governments plan pedestrian improvements, while Go Lloyd in Portland, Oregon, has helped make the case for parking changes and transit increases.

Directly investing in transit and transportation options

In some cases, employers may be willing to make direct investments in transit and transportation options. Some corporations have helped cover the costs of new transit stations. New Balance, for example, contributed millions of dollars to support construction of a new "Boston Landing" commuter rail station near its new headquarters in the Brighton neighborhood of Boston. Several schools, like the University of North Carolina in Chapel Hill and the University of Missouri in Kansas City, help pay for local bus service and provide their students with discounted or free passes.

It is critical that city leaders not let the tail wag the dog when it comes to partnerships with employers. Employers' willingness to support transit and transportation investments shouldn't distort the overall picture of investment; partnerships should be aimed at programs that support the city at large.

Resources

Core Values: Why American Companies are Moving Downtown: This report from Smart Growth America, Cushman & Wakefield, and George Washington University draws on surveys and interviews with hundreds of companies that moved to transit-oriented, walkable neighborhoods between 2010 and 2015. These companies found that their moves helped them attract talented workers, build company culture, be closer to customers and business partners, centralize operations, and become better corporate citizens——arguments which may be compelling to companies in your city.

A New Course: How Innovative University Programs are Reducing Driving on Campus and Creating New Models for Transportation: This 2014 report, from U.S. PIRG and the Frontier Group, outlines efforts at hundreds of universities to encourage transit, biking, and walking, including the discounted student transit passes described above.

Best Workplaces for Commuters: This membership organization and information clearinghouse outlines many programs employers can implement to make it easier for their employees to use transit, ridesharing, carpooling, and nonmotorized forms of transportation.

Examples of high-performing transportation-management associations:

A Better City (Boston)

128 Business Council (suburban Boston)

GoLloyd (Portland, OR):

This TMA reduced the drive-alone rate in Portland's Lloyd District from 86 percent to 41 percent between 1994 and 2009 through a comprehensive package of business-based programs for transit, biking, walking, and policy changes. It convinced area employers to replace free parking (which was typically used by workers) with metered parking (that was more convenient for customers). It also established a partnership with the local transit agency, TriMet. As the number of employee transit passes sold in the district increased, TriMet agreed to provide new transit service. The TMA is funded with a portion of the district's parking revenue.

3. Work with (or around) state government

Although there are exceptions, state departments of transportation generally take a more car-focused approach to mobility than city governments. That's because their historical role has been designing, building, and maintaining the interstate highway system. The most common area of contention lies around road design.

State roads that run through your city can become barriers to pedestrian and transit

This is especially true if they are designed and measured using performance standards developed for major highways. These include wide lanes (11 or 12 feet) that encourage speed, "clear zones" (the removal of trees alongside the road), and the use of performance measures that prioritize private automobiles.

It doesn't have to be this way. State departments of transportation in New Jersey and Maryland, for example, have developed flexible design policies that engineers can cite to justify "Main Street"-style designs in cities and towns. Other states have adopted the guidelines in the *Urban Street Design Guide* published by the National Association of City Transportation Officials. Others have adopted "complete streets" policies that require them to consider accommodations for biking, walking, and transit. If your state isn't living up to its own policies, you can use that as a pressure point.

State laws or standards may prevent good road design more broadly

State laws or standards sometimes preclude innovative design (see "Design streets to move more people"). In 2015, leaders in New Haven, Connecticut, realized they could not build a two-way protected bike lane because an old state law required cyclists to ride "as near to the right side of the roadway as practicable." City officials eventually convinced the state legislature to change the law.

In some cases, state legislators have passed punitive measures aimed at specific projects. In 2014 the Tennessee Senate passed a bill outlawing certain types of transit-only lanes in two Nashville-area counties at a time when Nashville leaders were planning a bus rapid transit project. The bill avoided becoming law only after furious advocacy from business and other leaders in Nashville.

Funding matters too

Federal transportation funding is passed through state departments of transportation as well as metropolitan planning organizations and transit agencies. Even though this funding goes to specific programs defined by federal formulas, states have substantial flexibility to move funds from one program to another. This means federal transportation funds can be used for a wide variety of pedestrian, transit, and bicycle projects.

On the other hand, many states restrict the use of the state gas tax to highways. Urban leaders should work to roll back these restrictions. Increasingly, municipalities are also turning to local sales or property tax measures to fund transit investments; around 70% of these pass annually, according to the Center for Transportation Excellence.

What you should do:

Know your rights Be skeptical if state bureaucrats claim that federal transportation funds can't be used for a transit street, bike lane, or pedestrian safety project. Federal transportation funds are flexible, and the federal government has endorsed many street-design measures that support transit and walking.

Raise your own funds Consider using local sales or property taxes to support transit investment; partner with businesses and others to supplement some transportation efforts (see "Partner with employers").

Use persuasion and politics If state government is standing in the way of solutions your community needs, the answer to your problem is often political, not technical. If a problem is occurring at the staff level——for example, state engineers who insist on applying highway standards to your main street——you may be able to convince leaders at the agency to take a more flexible approach. On the other hand, if the problem is opposition from agency leadership or even state politicians, you may need to do some coalition building. Work with civic leaders to make a fuss and support your case (see "Work with civic leaders"). If business leaders or community members back your project, it becomes harder for the state to stand in the way.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Resources

Federal Highway Administration *Memorandum on Bicycle and Pedestrian Facility Design Flexibility* and *Questions & Answers about Design Flexibility for Pedestrian and Bicycle Facilities*: These 2013 and 2014 memos from the FHWA officially endorse the use of the *Urban Street Design Guide* and *Urban Bikeway Design Guide* by the National Association of City Transportation Officials and *Designing Walkable Urban Thoroughfares* by the Institute of Transportation Engineers.

When Main Street is a state highway (www.communitybuilders.org/how-we-help/webinars/when-main-street-is-a-state-highway): This 2013 presentation by the Sonoran Institute outlines, with many visuals, the challenges that can arise when a town's Main Street is a state highway.

The Life and Death of Urban Highways: This report by the Institute for Transportation and Development Policy and EMBARQ outlines several cases in the US and elsewhere where communities have successfully convinced state departments of transportation to remove large highways and replace them with human-scale boulevards.

Center for Transportation Excellence (www.cfte.org): This organization is the primary resource for learning about successful local transit ballot referenda.

Transportation Innovations That Save States Money and Attract Talent: This briefing book by Transportation for America outlines more than a dozen transportation policies that state governments can carry out to save money and attract talented workers. Among them are recommendations that states invest in transit, walkable places, and main streets. Local leaders can use this guide to make the case to governors and state DOT directors that transit-first streets make economic sense.

Falling Forward: A guide to the FAST Act: This report by Transportation for America about the FAST Act, the most recent federal transportation law, is a useful resource outlining what local leaders can and cannot do with federal funds.

4. Work with civic leaders

Civic organizations——the independent think tanks, community groups, and advocates in your city——can play a valuable role in developing and delivering on your transportation agenda. Civic leaders have more freedom than elected officials to explore and launch new ideas. They can be a conduit for new ways of communicating ideas, whether yours or theirs.

Strong, well-organized transportation advocates exist in some cities. Many other civic groups don't think of themselves as transportation-related organizations but have realized that transportation innovation is key to their other objectives. For example, a business association that spends most of its time promoting its members' retail businesses may recognize that better transit is one means of drawing new customers.

The relationship between civic groups and elected officials is a dynamic one, with some groups likely to support transportation reforms, others inclined to oppose them, and many that will work with you on some issues but not on others.

Ideally, you can cultivate a coalition of civic leaders who will support the city when it undertakes difficult initiatives but then push the city to do even more. Transportation changes, like bus-only lanes and changes to parking, can lead to pushback. If constituents begin lobbying the city to maintain the status quo, it becomes essential for other citizens and civic leaders to continue demanding more change, giving your staff the political space to keep changing the transportation system.

The civic ecosystem

Different types of civic organizations play different roles, but all can be useful in building your agenda and maintaining support for it. Examples are:

Research organizations, sometimes affiliated with universities or sometimes independent nonprofits, specialize in collecting evidence, developing proposed policies, and publishing reports that inform and influence local leaders. Examples include the Allegheny Conference on Community Development in Pittsburgh and the Kinder Institute for Urban Research at Rice University in Houston, which studies residents' preferences about transportation, among other issues.

Membership-based advocacy groups, such as those that represent transit riders or bicyclists, can turn people out to testify at public hearings, collect signatures, and mobilize interested citizens in other ways. Examples include Ride New Orleans, Active Transportation Alliance in Chicago, and Riders Alliance in New York City.

Business organizations often understand the link between better transportation and economic growth. The Downtown Denver Partnership championed a large expansion of light rail and changes to the pedestrian environment. The Indy Chamber has been one of the foremost advocates for expanding bus service in Indianapolis (and helped to pass a transit tax measure in 2016). At a smaller scale, merchants' associations and business improvement districts often work on transportation, parking, and streetscape improvements at a local level.

The more diverse the civic ecosystem's organizations and skills, the greater the likelihood that a new idea launched into the public sphere will evolve into a political mandate.

If there are few civic groups working on transportation in your city, you may need to work with local foundations, community groups, and/or business leaders to change that: You can convince existing organizations that transportation is relevant to their work, or you can help to create new civic groups.

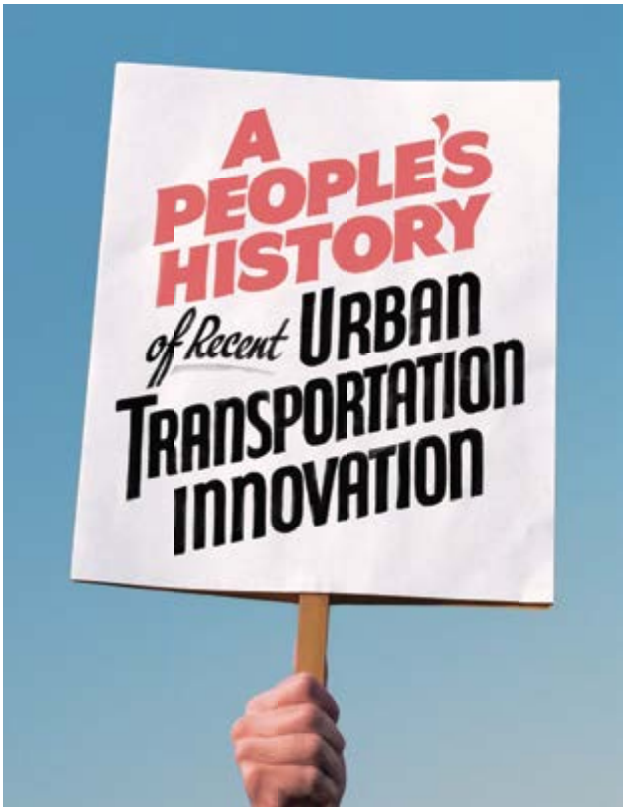
The MARTA Army, for example, is a new volunteer organization working to improve transit stops in Atlanta. RVA Rapid Transit is a 3-year-old pro-transit group that has helped shape changes to bus service in Richmond, Virginia, and grew out of faith-based organizing efforts. Local and national foundations (disclosure: including TransitCenter) have provided support to help both organizations grow.

Examples

Chicago has a diverse array of transportation groups, including the Metropolitan Planning Council (a planning organization), Center for Neighborhood Technology (a think tank), and Active Transportation Alliance (a membership group working for transit, biking, and walking improvements). Before the 2011 mayoral election, these and other groups released a "Sustainable Transportation Platform" with ten recommendations that would make it safer and easier to take transit, walk, and bike in the city. Incoming mayor Rahm Emanuel folded many of the recommendations into his transition plan, which ultimately informed the Chicago Department of Transportation's official action plan and led to new bus, bicycle, and pedestrian improvements.

In **Denver**, business and transportation groups have combined forces to support expanded transit and more walkable, bikeable streets. In the late 1990s and early 2000s, the Transit Alliance (a business-backed nonprofit) helped build public support for light-rail expansion. Beginning in 2005, the Downtown Denver Partnership (a business group representing downtown employers) helped set the vision for a more walkable downtown. More recently, membership groups like BikeDenver and WalkDenver have raised awareness of the need to improve walking, biking, and transit in core neighborhoods. This "civic ecosystem" has provided political cover to city leaders working to change transportation—— and put pressure on them when change slows down.

To learn more about these and other examples of civic leaders and elected officials working to win transportation change, read TransitCenter's 2015 report, *A People's History of Recent Urban Transportation Innovation.*



1. TransitCenter's 2015 report *A People's History of Recent Urban Transportation Innovation* demonstrated that civic leaders are often instrumental in introducing new ideas to the political mainstream and then providing the support needed for city leaders to implement those ideas.

By working fast and implementing projects that could be accomplished quickly, we provided New Yorkers with concrete changes they could experience, react to and learn from over time. Lessons from one project led to the next and showed us that short-term friction was a small price to pay for safer, more inclusive and welcoming streets in neighborhoods across the city.

Janette Sadik-Khan, Principal, Bloomberg and Associates. Former commissioner of the New York City Department of Transportation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Make the Most of Your Infrastructure

Make the Most of Your Infrastructure

As neighborhoods grow, it becomes essential for the city to optimize its limited street space, moving more people and accommodating more visitors and deliveries in the same amount of space. Prioritizing efficient transportation options, like transit, is a natural part of maturing as a city. So is active management of the curb.

1. **Use pricing to manage parking supply**
2. **Create efficient loading space**
3. **Encourage and incentivize transportation options**
   - **Lead targeted marketing campaigns and community events**
   - **Develop a universal transit pass program**
4. **Take the lead on Uber, taxis, and emerging mobility providers**

1. Use pricing to manage the parking supply

How does this strategy help your city?

Most cities large and small have periods of the day when drivers are unable to conveniently locate parking where they want it. This leads to excess traffic as cars circle for parking spaces. Often, although visitors perceive that there is "no parking" in a busy neighborhood, there is plenty of available parking at nearby lots or side streets. Furthermore, parking may not be available because it is priced too cheaply——patrons have no motivation to leave. By instituting smart parking pricing and coordinating the management of on- and off-street spaces, cities can "buy" themselves more parking capacity, particularly during busy times and in busy locations.

Proactively managing parking can ensure that spaces are available and utilized most effectively. Prime on-street spots should be used for shorter-term errands, like picking up a prescription. "Lower-value" spots on side streets and lots are a better fit for employees, theatergoers, and people lingering over a meal.

Why should I care?

Parking is a key piece of the transportation system and an asset that cities must manage just as they manage other resources in their portfolios. Maintaining on-street parking provides patrons access to local businesses, freight loading and unloading locations, and convenient and accessible parking for disabled drivers. Managing parking effectively:

- **Creates more vibrant places.** City parking programs accommodate visitors, employees, and residents alike. A coordinated system means cities can meet their access goals and use their parking resources more effectively, and that people who still choose to drive can find appropriate parking more easily.

- **Is good for business.** Higher turnover on busy commercial streets means more people can access the area. Moreover, employees are encouraged to park further away from businesses, freeing up these coveted spaces for customers.

- **Reduces congestion and perceptions of parking shortages.** More parking spaces available to the public can reduce the need for drivers to circle the block looking for parking, resulting in less vehicular congestion on busy streets.

- **Makes transit incentives more effective.** When parking has a cost, programs and incentives that encourage travelers to carpool or use transit are more effective. Reductions in drive-alone travel can subsequently reduce emissions and congestion.

- **Creates a new neighborhood revenue stream.** Funds collected from parking meters and citations can be invested back into the community to pay for access enhancements and pedestrian infrastructure.

What are the solutions?

Cities can manage parking supply and demand by instituting demand-based pricing as a part of a coordinated approach to managing on- and off-street parking. Pricing can vary by location and/or time of day. To enable access, a good rule of thumb is to have at least one free space per block, which roughly translates to 85% of curbside spaces occupied at peak times. Above this level, research shows that the street begins to experience traffic breakdowns as people line up to park.

The San Francisco Municipal Transportation Agency sets a goal of 60%—80% of curbside spaces occupied, while Seattle aims to keep one to two spaces open per block. At these levels, parking is well used, but availability (and the perception of it) remains, so customers can find parking in the most convenient and desirable areas. Cities have used the following approaches to manage parking:

- **Create a single entity responsibility for parking policy:** Develop a governance structure that manages both on- and off-street parking using incentives like pricing and special parking zones and areas.

- **Price parking by demand:** The cost of parking should be set in a manner that allows users to pay more for the most desirable spaces until availability goals are reached. Less desirable spaces that are further away from common destinations should cost less. "Free" is a price and absolutely a component of a demand-based system. Relative to on-street spaces, off-street parking should be a bargain, encouraging users to seek it first rather than view it as a backup or last resort.

- **Make adjustments gradually:** The actual price of parking should be adjusted over time to avoid sudden price shocks.

- **Apply time limits consistent with your access goals:** Prime on-street parking should be available for short- to medium-length trips; time limits and higher pricing can achieve this objective. It may also make sense to allow commercial deliveries to be made in spaces that serve short-term parking needs. (See our "Create efficient loading spaces" sheet.)

- **Consider longer (or no) time limits:** Instead of time limits (which require manual enforcement), cities can rely on price to incentivize customer turnover. Prices can also be more easily changed to reflect changes in demand.

- **Use smart meter/kiosk data and depoliticize individual rate changes:** Instead of relying on politics, use hard data produced by parking meters to figure out whether the price of parking should increase or decrease. Change your local parking ordinance so that parking changes (price, time limits, time span) can occur automatically in response to demand, instead of requiring legislative approval.

- **Make it easy to find and pay for parking:** Signage and wayfinding information should be intuitive and straightforward to ensure that visitors, employees, and residents understand where they should be parking. Pay-by-phone applications reduce stress for people who have parked.


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Examples

Salem, MA
Using parking-utilization data, the City of Salem determined how and where parking demand varied throughout downtown Salem. The city created multiple districts with different rates to match demand. By offering multiple rates, the city incentivized filling more spaces in its previously empty garage and created more availability on-street. Additionally, during Salem's high tourist season (October), parking rates are modified to accommodate additional visitors and raise revenue for the city. More information is available at www.parkinginsalem.com.

Berkeley, CA
The City of Berkeley, CA coordinates their on-and off-street parking prices to both simplify information for drivers and to set rates for off-street facilities that are lower than nearby on-street rates. Berkeley uses parking zones to divide the downtown core into Premium and Value Zones, and applies demand-based pricing to on-street meters in Premium Zones to encourage turnover and increase parking availability. Demand-based pricing is also utilized in the most popular off-street parking lots and garages to encourage short-term use. For more information, go to http://www.goberkeley.info/

Huntington, NY
In 2013, the town of Huntington, NY, was underpricing on-street parking at just $0.25/hour. There was no demonstrated market for paid parking in Huntington, and thus no reliable means for determining the need for a proposed garage. After studying the sufficiency of on- and off-street capacities to meet parking demand, the town implemented a tiered pricing system——with first-time forgiveness——for on-street parking. Instead of a costly parking garage, the town invested in smart meters and shifted meter hours to create availability during the dinner-hour rush while providing free street parking during low-demand mornings.

Seattle, WA
In 2010, the city council approved criteria to allow the Seattle Department of Transportation (SDOT) to manage on-street parking with the goal of keeping each block 75%—88% occupied. The SDOT Director has the authority to adjust rates within several zones and developed a program to vary parking rates between $1 and $4 by location and by time of day. Data collected in 2011 indicated that price increases created additional parking availability.

What should I do first?

Steps		Actions
1.	Identify Performance Measures and Assess Parking Needs	• Determine parking demand and availability (utilization count) • Identify existing regulations including time limits and pricing schemes, if applicable • Establish performance metrics and targets to track progress over time
2.	Form a Coalition	• Identify project champions and communicate actively with involved stakeholders to gain community acceptance (developers, businesses, land owners, employees, residents, developers, etc.)
3.	Modify Regulations	• Create ordinances that allow regulatory changes (price, time limits, span) by demand
4.	Create a Parking Enforcement Process	• Utilize Parking Control Officers as ambassadors for visitors and downtown regulars • Focus on ensuring availability, and when necessary, issues parking violations with informative tickets to spread awareness
5.	Form a Parking Fund	• Create a dedicated parking fund for revenues from the parking meters and citations • Form an investment committee to make decisions on how to spend revenues wisely
6.	Determine Policies for On and Off Street Parking	• Price parking in strategic locations in areas where creating vacancies and turnover of the most convenient "front door" curb spaces would be the most beneficial • Phase in demand-responsive pricing, if appropriate • Determine whether high-use parking lots / garages should be priced or remain free
7.	Develop a Parking Management Program	• Ensure that on-street and off-street policies work together to create availability and convenience across the entire parking system • Create an intuitive, straightforward signage and wayfinding information program for visitors, employees, and residents
8.	Launch a Pilot Pricing Program	• A pilot program could include a number of the steps listed above: - **Set prices for parking in strategic locations where creating vacancies and turnover of the most convenient "front door" curb spaces would be the most beneficial** - **Over time, phase out time-limited parking (if relevant) and phase in demand-responsive pricing** - **Create an intuitive, straightforward signage and wayfinding information program for visitors and residents**

Learn More

Parking Management: Comprehensive Implementation Guide: This 2016 report from the Victoria Transport Policy Institute outlines dozens of on-street and off-street parking management strategies. http://www.vtpi.org/park_man_comp.pdf

U.S. Parking Policies: An Overview of Management Strategies: This 2010 report from the Institute for Transportation and Development Policy highlights best practices in parking policy. www.itdp.org/u-s-parking-policies-an-overview-of-management-strategies/

Contemporary Approaches to Parking Pricing: A Primer: A 2012 overview of parking pricing from the Federal Highway Administration. ops.fhwa.dot.gov/publications/fhwahop12026/index.htm

P*rice Elasticity of On-Street Parking Demand—A Case Study from Seattle*: This technical academic study derives parking price elasticities from Seattle which may be useful for transportation engineers elsewhere. http://onlinepubs.trb.org/onlinepubs/conferences/2012/4thITM/Papers-A/0117-000111.pdf

SFpark: Pricing Parking by Demand: This 2013 ACCESS Magazine article contains more information on the SFpark dynamic pricing program. www.accessmagazine.org/wp-content/uploads/sites/7/2015/10/SFpark.pdf

Turning Small Change into Big Changes: This 2003 ACCESS Magazine article summarizes on-street parking policy in Pasadena. shoup.bol.ucla.edu/SmallChange.pdf

Parking in Mixed-Use U.S. Districts: Oversupplied No Matter How Your Slice the Pie: This academic study finds that, across 27 mixed-use districts in the country, parking is oversupplied by 65% on average. nelsonnygaard.com/publication/parking-in-mixed-use-districts/

2. Create efficient loading spaces

How does this strategy help your city?

To create vibrant, successful urban places and to improve quality of life and variety in commerce, cities must ensure the reliable, efficient movement of goods from the moment freight enters the city limits until it is safely delivered to its destination. Maintaining access to curbside loading zones for commercial loading, delivery, and service provisions helps support downtown business and encourages walkable, urban development.

Unfortunately, commercial loading zones are often undersized, poorly located, and/or improperly timed. Demand for loading zones is often concentrated in early morning and midday periods, outstripping available space. When zones are improperly located or sized or under-enforced, loading times are unnecessarily extended and maneuverability of delivery vehicles is limited. Time lost during the delivery process is costly to both business owners and delivery operators and can be reflected in higher prices for consumers. Failing to provide good commercial access can also lead to "truck chaos"—— double-parking and other unsafe loading behaviors that worsen traffic, make the street more dangerous, and frustrate businesses.

By ensuring the availability of commercial loading spaces and reducing loading times, cities can help lower congestion on busy local streets and maintain economically viable and safe downtown cores.

Why should I care?

- **Achieve greater cost savings.** Reducing time lost because of mismanaged commercial loading zones can lower costs for both business owners and delivery operators, as well as consumers.

- **Efficiently manage demand.** hifting some delivery demand to off-peak periods reduces peak and midday demand and makes better use of loading zones.

- **Improve compliance.** Targeted enforcement of delivery and loading zones can lead to higher compliance and a decrease in parking violations.

- **Results in higher curb turnover.** Lowering curb occupancy times for delivery vehicles will enhance curb turnover and result in greater mobility for all users.

- **Reduces double-parking.** More commercial loading zones available to delivery vehicles reduces double-parking and circling, resulting in improved maneuverability for all vehicles.

What are the solutions?

Many cities are beginning to apply lessons learned from recent innovations in short-term parking management to improve levels of service for curbside loading. Cities can employ several strategies and policies to establish more efficient commercial-loading protocols:

- **Commercial Vehicle Loading Zone:** Establish permits and charge delivery operators for access to commercial vehicle loading zones (Seattle and Philadelphia).

- **Metered Loading Zones:** Replace unpaid commercial parking zones with hourly, escalating metered commercial-vehicle loading spaces (New York).

- **Off-Peak Scheduling:** Provide cash incentives to delivery operators and customers that agree to shift delivery hours to off-peak periods (New York).

- **Shared Space Design:** Widen and extend sidewalks to develop pedestrian spaces that can be shared with delivery vehicles (San Francisco and Madison, WI).

- **Targeted Enforcement Campaigns:** Deploy a targeted enforcement program to reduce traffic congestion and improve delivery efficiency in key corridors (Los Angeles).

Examples

New York, NY
In 2000, NYC DOT initiated a pilot program called the NYC Commercial Congestion Parking Program. This program replaced unpaid commercial parking with escalating hourly metered rates for all commercial loading zones to encourage operators to vacate spaces once their loading activity was complete. By 2009, the program included approximately 8,000 curbside parking spaces, including all of Chinatown and all commercial areas in Midtown Manhattan. Program muni-meters accept coins, credit cards, and prepaid parking cards. Since implementation, curb occupancy has dropped from 140% to 95%. The typical time of occupancy has fallen from 160 minutes to 45, and just 25% of commercial vehicles remain parked for more than 60 minutes. Read more about this program in the Institute for Transportation and Development Policy's 2010 report *U.S. Parking Policies: An Overview of Management Strategies* (www.itdp.org/u-s-parking-policies-an-overview-of-management-strategies/)

Seattle, WA
Seattle established a Commercial Vehicle Loading Zone (CVLZ) program in 1990 to help provide a structure and location for service-delivery vehicles to load and unload. The CVLZ is defined by yellow paint on the curb, signage, and a yellow parking meter. Companies that operate a fleet of ten or more commercial vehicles are eligible to purchase one transferable permit for every ten nontransferable permits purchased. Smaller companies must purchase a permit for each vehicle it intends to use in CVLZ locations. CVLZ permits cost $195 annually, and SDOT issues over 4,000 permits per year. Read more about this program on the Seattle Department of Transportation website at www.seattle.gov/transportation/parking/CVLZpilot.htm

What should I do first?

Steps		Actions
1.	Identify Commercial Delivery Needs and Performance Targets	• Determine parking demand and availability for delivery vehicles (utilization count, zoning code) in key commercial districts • Review barriers impeding effective commercial vehicle loading and delivery • Establish performance metrics and targets to track progress over time
2.	Develop a Loading Strategy and Regulatory Framework	• Review pros and cons of potential commercial loading and delivery strategies • Work with business owners and delivery operators to identify a contextually appropriate option • Assess existing zoning codes, licensing/ assessments, design guidelines, and enforcement protocol, and update policies as necessary
3.	Support Commercial Delivery Efforts	• Select a pilot project; coordinate with nearby businesses, services, and delivery operators • Determine revenue-sharing and enforcement frameworks
4.	Report and Monitor	• Be transparent with businesses, delivery operators, and city officials • Conduct regular utilization counts of commercial loading zones; adjust zoning code as necessary

3. Encourage and incentivize transportation options

Lead targeted marketing campaigns and community events

How does this strategy help your city?

In many communities across the country, transit service is available and safe, and protected bike trails connect to key destinations. Not all residents, employees, and visitors, however, are aware of these transportation options. Outreach programs for new transportation investments, including public transit services, typically rely on mass marketing through conventional media (TV, radio, and mailings) to increase awareness. These approaches may reach a wide public audience, but mass marketing lacks personalization, and hands-on engagement can be more effective in educating some users about new transportation services and changing travel behavior. To fully capitalize on new transportation investments, city staff can partner directly with transit agencies to ensure that new services and programming are strategically marketed to the appropriate and receptive groups. Community events, such as Open Streets events (described below), are also effective ways of improving people's willingness to try new modes.

Why should I care?

- **Generates ridership for new transit services.** Individualized marketing campaigns support new public transit investments by attracting users who previously lacked access to services.

- **Raises awareness.** Increasing the visibility of transportation investments can create a positive public identity for them and establish a more transit- and bike-supportive culture.

- **Changes travel preferences.** Individualized marketing and community events help educate people who are unfamiliar with local transportation services, programming, and characteristics. Individualized marketing can increase the likelihood that residents, employees, and visitors will consider or embrace alternative transportation modes.


WORK DOWNTOWN?
ASK FOR $5 TRANSIT PASS!
Go Transit.
PETIT PARIS
PETIT PARIS

What are the solutions?

Targeted marketing campaigns, or individualized marketing (IM), provide tailored outreach to educate people about their travel choices. This customized information allows each marketing program to focus on the unique travel needs of the individual neighborhood, institution, or audience.

Open Streets events allow residents to try a new mode of transportation in a safe, supportive environment. Certain roads are closed to vehicle traffic, and bicyclists and pedestrians can navigate the streets car-free. In some communities, like Portland, OR, they're referred to as Sunday Parkways, while in others, such as New York City, they are called Summer Streets.

Combined with community events, IM can effectively bridge the information gap and support a change in travel behavior—driving less and using alternative travel options more. Using a variety of outreach methods that are specifically focused on a target area or audience, IM programs are proven to have a significant impact on travel behaviors. Increasingly, IM and community events are initiated alongside major transit service and infrastructure projects to promote these investments and maximize their usage.

Several strategies can be used to effectively reach intended audiences and affect travel behavior:

- **Customized Outreach:** Promote transportation options within a specified geographic area and/or to a designated demographic audience. IM campaigns are typically limited in duration (about three to six months) but include significant outreach through a variety of media, such as direct mail, social media, and email.

- **Unique Branding:** Establishing a unique brand for individual marketing campaigns or transportation

programs differentiates these initiatives from existing services. Brands can include a new name, logo, or color scheme and can be applied to transit vehicles, facilities, marketing materials, and websites.

- **Community Events:** Partnering with transit agencies, social service agencies, neighborhood groups, the local business community, senior centers, and health care providers to promote new transportation services can help broaden public exposure, especially among transit-reliant individuals. Community events—including mobile workshops and shared/open streets events—raise awareness of new transportation options and programming.

Examples

Portland, Oregon

The Portland region is one of the nation's leaders in individualized marketing. The City of Portland has been leading SmartTrips (or IM) programs for years. In 2015, TriMet, the City of Milwaukie, and Metro (the regional government agency) formed a unique partnership to help launch the region's newest MAX line—the Orange Line connecting downtown Portland to Milwaukie. An individualized marketing campaign was developed to promote the service. The target area for this IM program was approximately 4,500 households throughout Milwaukie and parts of nearby Oak Grove. Outreach included, but was not limited to, door-to-door distribution of informational materials, e-newsletters, and community events, such as a family bike ride and art walk. Survey data for the Orange Line project found that drive-alone trips among program participants fell by 10%, while walking trips increased by 50%. A similar program for the TriMet Green Line that opened in 2009 demonstrated an 18.4% reduction in drive-alone trips for program participants.[1]

1 City of Portland, Bureau of Transportation, SmartTrips Green Line Final Report, 2010, https://www.portlandoregon.gov/transportation/article/331242.

2. The Portland Smart Trips program includes a wide array of transportation options marketing and information materials. (Photo via City of Portland.)

Portland is one of the few cities that conducts individualized marketing at a scale large enough to have meaningful impact. Between 2004 and 2015, it targeted a different neighborhood each year, often sending materials to up to 30,000 households. It now focuses its program on new arrivals to Portland, using direct-mail databases to target new households with informational material.

Hillsboro, Oregon

"Drive Less Save More: Cedar Hills" was a three-month individualized marketing campaign aimed at reducing drive-alone trips. Numerous organizations, including the Oregon Department of Transportation (the primary funder), the regional government (Metro) Washington County, local jurisdictions, local businesses, and the Bicycle Transportation Alliance collaborated on this campaign.

The campaign had the specific goal of encouraging women and families to walk, take transit, bike, and carpool, and it used a neighborhood-based approach that included hand-delivering customized transportation information, hosting neighborhood events, and conducting pre- and post-program surveys.

To evaluate the effectiveness of the campaign, these pre- and post-program travel surveys measured mode share in the target area. Results indicated that residents decreased their drive-alone mode share by 1.2%, increased their transit use by 2.0%, and increased walking by 0.6%. Vehicle miles traveled were also reduced in the program target area by approximately 1,880 miles per day.

Respondents in the post-program survey were also asked if they were driving alone more often, less often, or about the same compared to six months prior—before the start of the program. About 20% of post-survey respondents stated they were driving alone less often. Of this 20%, approximately 9% claimed access to better information about transportation options contributed to this change.

What should I do first?

Steps		Actions
1.	Identify Targeted Community Audience	• Review and identify transportation investments that can benefit from targeted marketing campaigns highlighting transportation services and programming • Determine the target audience, neighborhood, and subpopulations to engage through the individualized marketing campaign
2.	Develop a Marketing Framework	• Determine the most effective outreach methods for reaching your intended audience • Establish unique branding for outreach and marketing materials • Seek funding through federal or state grants
3.	Coordinate with Strategic Partners	• Meet with public agencies, neighborhood groups, business leaders, and human service organizations to help coordinate events and distribute messaging
4.	Begin Targeted Marketing Campaign	• Roll out your marketing campaign with individualized marketing and community events • Establish metrics to help quantify project success (number of households that respond to inquiry, number of community event participants, change in drive-alone rate); conduct a participant survey before and after the marketing campaign to effectively track the rate of participation among targeted users

Learn More

Long Term Evaluation of Individualized Marketing Programs for Travel Demand Management: This academic study, by Portland State University investigators, concluded that Portland-area individualized marketing programs result in behavior change that can persist for two years. The impact of these programs depends on the quality of walking, biking, and transit infrastructure in a neighborhood (better infrastructure leads to larger, more durable behavior change).

Individualized Marketing Programs (Travelchoice): In 2009, the Bay Area think tank SPUR recommended 42 different transportation policies that would help the region move more people while reducing pollution. This report excerpt recommends San Francisco adopt an individualized marketing program, and describes how such programs have been used in the Bay Area in the past.

3. Encourage and incentivize transportation options

Develop a universal transit pass program

How does this strategy help your city?

In many cities, there is a lack of awareness among potential public transportation users of the transit system's span of service, route alignments, and functionality. Moreover, in urban areas, valuable land is often occupied by parking lots and structures that cater to employees only present during weekday business hours. As more people use public transit, parking can be converted to more active, revenue-producing uses.

Universal transit passes encourage commuters to consider using public transit by reducing the cost and confusion of using the service. Universal pass programs can also help define a geographic area——e.g., a downtown——as a "transit place" and increase collaboration and cooperation among employers. Pass programs in many cities are offered for downtown employees, ensuring that a city's largest employment base has an affordable commuting option and that limited parking spaces are available for non-employees (visitors, residents, etc.).

Why should I care?

- **Builds transit ridership.** Universal transit passes increase transit ridership and help jurisdictions achieve transit mode-share goals.

- **Attracts economic development.** Districts accessible by transit are more attractive to new employers, require fewer dedicated parking facilities, and help promote economic development.

- **Is affordable for employees and residents.** Employees are more likely to use transit if the fare is free or subsidized. Universal transit passes allow people who rely most heavily on transit to use it affordably.

- **Raises transit awareness.** Universal transit passes broaden the awareness of transit services, especially with employees who do not actively use public transportation.

What are the solutions?

Universal transit pass programs engage employers in encouraging transit ridership and reducing congestion and parking needs associated with personal vehicles. Universal transit passes provide free or discounted transit service to employee or student users located within a given jurisdiction or campus, and they function best in areas with high employment densities, such as downtown districts. Services are typically subsidized by municipal governments, transit agencies, economic development organizations——such as development associations or business improvement districts——and/or employers.

Cities, economic development districts, and colleges can directly incentivize transit use by creating transit passes using the following models:

- **District Subsidy:** Employees within a designated district are provided free or reduced transit rides (Ann Arbor, MI).

- **Employer-Subsidized:** Employers provide subsidized transit passes to employees at significantly reduced rates (Boulder, CO).

- **U-Pass:** U-Pass programs are common at colleges and universities and offer reduced or free transit services to students in coordination with local transit agencies (University of Washington, Seattle, WA).[1]

1 "Student U-PASS," University of Washington, https://www.washington.edu/facilities/transportation/student-u-pass.

Examples

Ann Arbor, MI

Ann Arbor's Downtown Development Authority (DDA) manages nearly all public parking in the city's downtown, with the goal of balancing parking accommodation with demand management to produce the maximum benefit to the community. The DDA uses parking revenues to sponsor a universal transit pass program, known as go!pass. The transit pass is available to all downtown employers and provides unlimited free trips on all TheRide buses. The DDA sponsors 95% of the program's cost ($529,000 in 2015), which is administered by getDowntown. Employers are required to pay an annual participation fee based on their total number of employees; individual passes cost an additional $15, charged to the employer. In 2013—2014, go!pass ridership totaled 678,103 passengers and was utilized by nearly 500 downtown businesses.[2] Read more about the go!pass program at www.getdowntown.org/gopass.

Boulder, CO

Boulder's EcoPass program is an annual Regional Transportation District (RTD) transit pass available to enrolled employers. Pricing is determined by the zone an employer is located in and the total employee count. The average cost per employee is $150, and GO Boulder and Boulder Transportation Connections reimburse 50% the first year of an employer's EcoPass contract, with a 25% reimbursement the second year. In December 2014, the EcoPass program had 107,747 participants. Full-time employees in Boulder's Central Area General Improvement District and the Downtown Boulder Business Improvement District are eligible for the Downtown Employee EcoPass; employees ride free on all RTD services with no charge to the employer. Read more about Boulder's EcoPass at bouldercolorado.gov/goboulder/eco-pass-program.

2 Ryan Stanton, "Use of go!passes by downtown Ann Arbor workers grows 7% in last year," MLive, April 10, 2015, http://www.mlive.com/news/ann-arbor/index.ssf/2015/04/use_of_gopasses_by_downtown_an.html.

What should I do first?

Steps		Actions
1.	Identify Employment Districts or Universities	• Identify locations of high densities of employers or students that warrant implementation of a universal transit pass
2.	Coordinate with Transit Agencies and Economic Development Organizations	• Determine program feasibility with local public transit agencies and economic development organizations that represent influential employers
3.	Promote Transit Pass Program	• Communicate with employer human resources representatives to promote and enroll employers in transit pass program • Work actively with employers and employees to ensure the transit pass is easy to understand, use, and is worthwhile
4.	Report and Monitor	• Track program enrollment, employer use, ridership, and cost

4. Take the lead on Uber, taxis, and emerging mobility providers

With the rise of emerging mobility providers like transportation network companies, on-demand transit, and carsharing systems, cities are facing a changing transportation landscape. While these services offer the potential to provide more choices for citizens, they also can prove confusing to policymakers. Some principles to keep in mind:

Uber and other e-hail services won't kill transit

These days, cities are bombarded by claims that driverless cars and transportation network companies make fixed-route transit unnecessary. These claims, often peddled by self-interested technology leaders or anti-transit activists, fail to grapple with geometry. Technology and venture capital can't change the fact that 40 people in 40 cars take up more space than 40 people on a single bus. Transit——capable of moving up to 8,000 people per hour in a dedicated transit lane and up to 25,000 in a dedicated transitway——will always be the most space-efficient way of moving people. Private cars might carry up to 1,600 people per hour on an urban street. Even if driverless cars can travel closer together, it is difficult to imagine them outperforming transit in dense neighborhoods.

In major cities, e-hail companies have a competitive advantage at night and during other times when few people are traveling but cannot match the capacity of public transportation during peak travel hours. Recent research also calls into question transportation network companies' overall financial viability—Uber in particular.

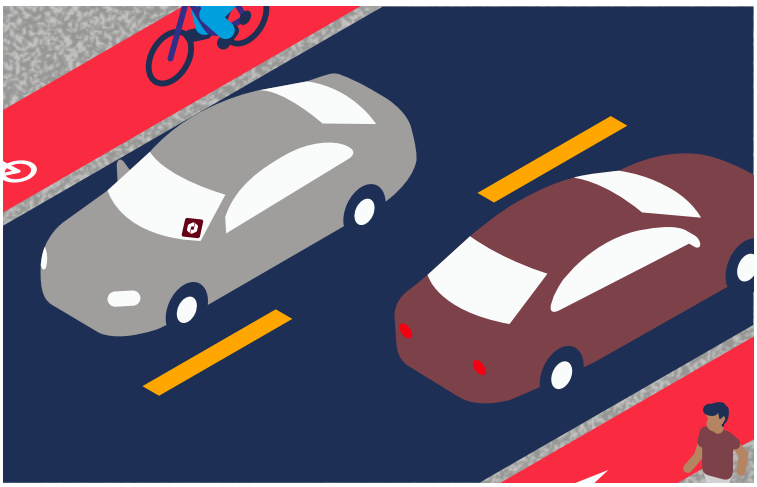
"Taxi policy" must reflect the city's overall transportation goals

Taxi and for-hire vehicle policy is often viewed as a consumer-protection and licensing issue and is isolated from the departments and agencies that govern streets and transit. The rapid emergence of ridehailing and microtransit companies, however, raises new issues, and cities need to be prepared to regulate and set incentives in new ways to respond to emerging challenges.

The role of cities is to assert and create incentives to promote the public interest—

Accessibility, equity, safety, sustainability——and to support new transportation modes in accordance with their ability to support the public interest. If a city wishes to reduce per-passenger pollution or reduce the number of vehicles on the road, for example, that city ought to create financial incentives and/or regulatory mandates that promote high-occupancy vehicle use. This basic notion of incentivizing cities' strategic goals in line with the public interest applies equally to e-hail providers, taxis, personal vehicles, buses, trains, and (someday) autonomous vehicles. Some technology-specific questions are valid, but most are a distraction from core, fundamental issues like parking policy, street space allocation, and for-hire vehicle regulation.

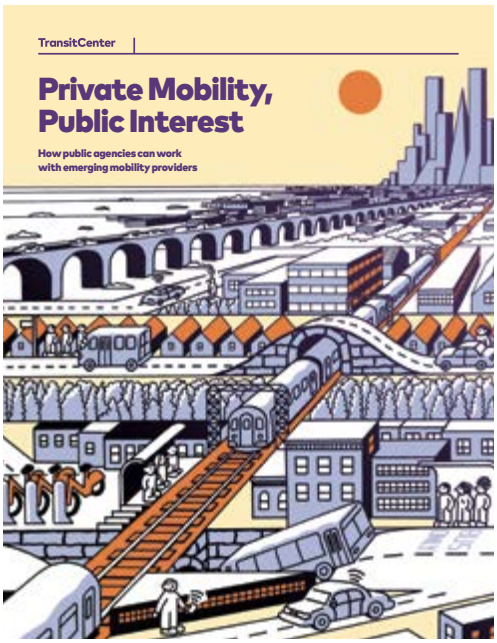
For example, the San Francisco Municipal Transportation Authority views e-hail and shuttle services as worth encouraging (and setting aside street and curb space for) because they reduce reliance on private automobiles. Bay Area Rapid Transit dedicates



space for carsharing services at some of its rail stations, but only if the carshare space is predicted to generate more transit trips than a normal parking space. Similarly, it may be reasonable for cities and transit agencies to subsidize e-hail service or on-demand transit in areas currently served by marginal bus routes, if that bus service is redeployed to add frequency in places with high ridership.

Public assets can be used to leverage private resources

Cities have assets that can benefit emerging mobility companies, like street and curb space. These should be used as leverage to achieve policy goals. For example, Seattle allows a carshare company to park its vehicles freely within the city but requires that the service cover the entire city so that the benefit is not restricted to wealthier neighborhoods.



Examples

San Francisco Municipal Transportation Authority
2013—2018 Strategic Plan: Goal 2 of the agency's strategic plan describes its approach to taxis and ride-hailing.

A San Francisco non-profit, Livable City, partnered with Lyft to designate loading zones for ride share vehicles at the San Francisco regional commuter rail (CalTrain) station to promote the connection between ride sharing and transit.

Centennial, CO: Centennial partnered with the Denver South Transportation Management Association on a pilot program to subsidize passengers who use Lyft Line to reach the Denver Regional Transportation District's Dry Creek Light Rail Station weekdays between 5:30am and 7pm. Pilot projects like this should be designed to help cities learn how to address their most pressing transportation challenges in new and creative ways.

The **Los Angeles Department of Transportation** hired a transportation technology research fellow to inform the agency's short-, medium-, and long-term technology strategies—from building a solid data foundation to preparing for an automated future.

This policy area is moving quickly. The examples listed above are not necessarily best practices, but examples of how cities are experimenting with emerging mobility providers to achieve transportation goals. https://transitcenter.org/publications/private-mobility-public-interest/

Resources

Ride-Hailing Services: Opportunities and Challenges for Cities: This white paper from the National Association of City Transportation Officials is a useful primer for cities that want to change how they regulate e-hail services like Lyft and Uber. It outlines positive and negative outcomes that may result from increased e-hail service, the questions cities should ask to understand how their regulations may need to change, and key considerations that often arise when seeking to regulate e-hail services (such as safety, data, economic competition, accessibility, and connections with other modes).

Private Mobility, Public Interest: This TransitCenter report identifies actionable short-term opportunities for transit agencies and municipalities to work with emerging mobility providers. More than a dozen project-specific case studies highlight opportunities to reinforce transit's strengths, plan more flexibly and with users in mind, and leverage valuable agency infrastructure and financial resources. This report is built on a foundation of more than 100 interviews with industry representatives from the public and private sectors.

Why Uber Won't Kill Transit: This TransitCenter fact sheet lays out key arguments for advocates and city leaders contending with claims that new technology makes transit irrelevant. It points out that e-hail cannot physically replace high-frequency bus and rail and is actually less effective at moving people than low-ridership bus routes. It points out that peak demand for transit and e-hail services occurs at different times of the day.

Shared Mobility and the Transformation of Public Transit: This report provides recommended actions that public entities—transit agencies, transportation departments, and other local and regional agencies—can take to promote useful cooperation between public and private mobility providers.

The things we're building to help people move are actually building the city. So, what kind of city are you building? Mayors have to be clear about what outcomes they're seeking. And mean it. Then transportation directors have to take those big-picture goals and align them with day-to-day tactics and strategies.

Chrissy Fanganello, Director of Transportation & Mobility, City of Denver

Rewrite the Rules to Boost Growth, Not Traffic

Shape Your City with Smart Regulations

Many regulations make it hard for residents to get around without a car. Old, suburban-oriented standards force developers to build parking garages and widen streets to accommodate traffic, and in the process make it harder to walk and create successful transit. Cities are increasingly flipping the script, updating these old mandates and encouraging developers to make it easier to use other transportation options. Cities are also taking on outdated taxi laws that haven't adapted to a new transportation era.

1. **Parking policy**
   - **Reduce parking minimums**
   - **Allow shared parking**
   - **Create transit overlay zones**
2. **Change development review to cause less traffic loading space**
   - **Eliminate Level of Service from transportation impact review**
   - **Rethink Trip-Generation and Parking Standards**
   - **Integrate transportation options into development review**
3. **Design streets that move people**
4. **Design walkable, transit-friendly neighborhoods**

1. Parking policy

Reduce parking minimums

How does this strategy help your city?

For the past half-century, zoning codes across the United States have imposed minimum requirements for on-site parking spaces. More "art" than "science," these requirements were introduced to allay concerns that existing parking supplies were insufficient to handle projected future traffic demands. In nearly every city the resulting requirements have been over-generous, even when perceptions suggest shortages. On average, 65% more parking is provided than is used.[1]

This oversupply of parking is expensive to construct and maintain and has serious negative consequences for economic development. The artificial reduction in the supply of developable land leads to higher costs for housing, operating a business, and for goods and services. These parking requirements also inhibit the development of walkable and bikeable streets. Especially in transit-rich neighborhoods, it is critical to rightsize parking at more appropriate levels, generally below current standards, to ensure land is developed efficiently.

1 Eric Jaffe, "Just Because You Can't Find a Place to Park Doesn't Mean There Aren't Way Too Many Parking Spots," CityLab, January 14, 2015, http://www.citylab.com/cityfixer/2015/01/just-because-you-cant-find-a-place-to-park-doesnt-mean-there-arent-way-too-many-parking-spots/384509/.

King County, WA, Right Size Parking Calculator

Responding to historic oversupply of parking, King County, Washington, developed its Right Size Parking Calculator to demonstrate to developers how they could have a more balanced approach to parking supply in the region. The calculator is based on current local data of actual parking use collected in the field from more than 200 developments in urban and suburban settings. Occupancy data was correlated to building type, occupancy, parking pricing, population density, and employment density. For more information, see King County Metro's Right Size Parking Project (metro.kingcounty.gov/programs-projects/right-size-parking/)

Why should I care?

- **Increases level and quality of investment.** An oversupply of parking can limit the viability of affordable housing, mixed-use projects, and proposals that emphasize bike amenities, carshare, transit, and walking and cycling connections over car accommodation.

- **Reduces costs of development.** Parking increases the overall cost of development and often uses more land than the primary use.

- **Helps reduce the cost of living.** Building new parking in urban areas adds considerable project costs. A surface lot costs, on average, $20k per space. Structured parking can be as much as $45k per space. Usually, these costs are externalized in higher prices for goods, services, and housing.

- **Helps improve equity.** Higher costs of living associated with building new parking create a particularly unfair burden for low-income households and those who do not drive and make it challenging for developers to construct workforce housing.

- **Improves viability of infill development.** Parking requirements can make smaller sites and historic redevelopment opportunities physically or economically infeasible, limiting their re-investment value and encouraging "greenfield" development.

- **Reduces car ownership and use.** An oversupply of parking has consistently been shown to encourage the use of the automobile over all other modes. By minimizing the amount of parking in strategic locations, cities demonstrate that other modes such as biking, walking, and transit are viable options.

- **Improves pedestrian, bike, and transit networks.** On-site parking requirements increase the number of driveways that create pedestrian conflicts, unpredictable traffic patterns for cyclists to navigate, and turning movements that worsen congestion.

What are the solutions?

- **Rightsize parking requirements based on actual usage.** Base usage estimates on actual usage at comparable locations.

- **Eliminate minimum parking requirements.** Allow developers and owners more freedom to determine and provide the amount of parking they feel the market will support in new or existing developments. This is particularly useful in downtown areas near frequent transit service and in smaller buildings that are not as likely to generate high demand.

- **Institute parking maximums.** Some communities have converted minimum parking requirements to maximums to cap the number of parking spaces allowed.

- **Encourage shared parking.** Allow new and existing developments and nearby buildings with complementary uses to share preexisting spaces to meet their parking requirements. (See the "Allow shared parking" strategy sheet.)

- **Allow in-lieu alternatives.** Allow developers to fund public parking or mobility/access enhancements in lieu of meeting parking requirements.

- **Set parking policies as part of a larger vision.** Parking requirements should be used as a tool to achieve a city's larger goals and objectives. Connecting parking requirements to broader mode split, economic development, environmental, and health goals can leverage support and dissuade pushback from the community.

The nonprofit Strong Towns has crowd-sourced a map of localities that have eliminated or reduced parking minimums. Dozens of cities—small, medium, and large—have rightsized parking in at least one neighborhood. View the map at http://www.strongtowns.org/journal/2016/11/22/our-parking-minimums-map-updated.

Examples

Chicago, IL
In 2015, Chicago announced reforms to its transit-oriented development policies, which were designed to encourage and support development near the city's transit stations. Among the reforms was an amendment to the zoning code that allowed developers to reduce the minimum parking requirements by up to 100% for nonresidential uses and by up to 50% for residential uses within TOD ordinance zones. Reductions in the required minimum of parking spaces are contingent upon the developers providing sufficient access to other transportation options, including providing a carsharing station or bicycle parking on site in lieu of the parking spaces. Residential uses in TOD ordinance zones can further reduce minimum requirements by up to 100%, subject to additional review. For more information, see Chicago's 2015 TOD Ordinance.

Nashville, TN
As one of the fastest-growing cities in the nation, Nashville is taking great strides to invest in public transportation and implement parking policies to ensure the most is made from their investments. In 2010, the Downtown Code was approved; 886 acres in downtown Nashville now have no minimum parking requirements.

Seattle, WA
In Seattle, parking minimums have been eliminated in the downtown area, with a few exceptions, and also in sections of the city classified as Urban Centers. In many other sections of the city, including those classified as Urban Villages as well as other areas with frequent transit service, parking minimums have been reduced. In commercial zones and pedestrian-designated zones, no parking is required for the first 1,500 square feet of each business establishment. In all other zones, no parking is required for the first 2,500 square feet of gross floor area of nonresidential uses in a structure, with certain exceptions. The city has also established parking maximums in some areas. For example, in commercial zones (with a few exceptions) no more than 145 spaces per lot may be provided as surface parking. In all multifamily zones, commercial buildings may not provide more than ten parking spaces per business establishment. For more information, see City of Seattle Municipal Code — Chapter 23, §23.54.015.

What should I do first?

Steps		Actions
1.	Set goals and performance measures	• State the purpose of parking requirements, identifying the role parking plays in larger contexts and establishing parking as a tool for achieving citywide goals • Set performance measures for parking management and operations to track utilization and ensure policies meet community goals
2.	Assess the status quo	• Regularly assess parking supply and parking occupancy to identify oversupply • Allow new development to use existing supply to meet expected use • Consider instituting parking maximums as transit service and land use allow
3.	Offer alternatives	• Develop and provide an in-lieu fee option for developers • Develop a shared-parking policy that allows minimums to be met through existing shared parking resources (see the "Allow shared parking" strategy sheet)
4.	Build consensus	• Be transparent with businesses, city officials, and the public (users) on existing and future conditions • Encourage shared parking by brokering shared-parking agreements • Communicate the economic benefits of reduced parking to developers and lenders • Effectively promote the purpose, goals, and benefits of effective managed parking to the public to reduce opposition

Learn More

Stalled Out: How Empty Parking Spaces Diminish Neighborhood Affordability: This 2016 report from the Chicago nonprofit Center for Neighborhood Technology shows how parking mandates drive up the cost of housing and often force developers to build spaces that go unused. The authors surveyed 41 multifamily residential buildings and found that they provided twice as many parking spaces as were actually used.

Right Size Parking Project: This detailed study was conducted for the Seattle region by King County Metro. It shows parking occupancy in different parts of the region, demonstrating that use of parking decreases substantially in more centrally located, transit-accessible neighborhoods. It also includes a "parking calculator" that allows users to estimate parking demand in hypothetical residential developments.

"Parking Reform Made Easy" (www.accessmagazine.org/articles/fall-2013/parking-reform-made-easy/): This 2015 ACCESS Magazine article, by Dr. Richard Willson of Cal Poly Pomona, suggests 12 steps local planners can take to reform parking in their community. (The article summarizes Dr. Willson's book of the same name.)

Sustainable Transportation Planning: Tools for Creating Vibrant, Healthy, and Resilient Communities, Chapter 10 ("Parking"): This 2012 book by Jeff Tumlin, the director of strategy at Nelson/Nygaard and interim director of transportation for the City of Oakland, includes a high-level summary of best parking practices from around the country.

1. Parking policy

Allow shared parking

How does this strategy help your city?

Different land uses have different parking needs at different times of the day. For example, if a hardware store that operates primarily in the daytime and a restaurant that experiences peak demand at night share parking facilities, significantly fewer parking spaces are needed to meet overall demand. (Another example is shared parking between a residential building that primarily requires overnight parking and an office that requires daytime parking.)

By requiring each building to cover its unique period of peak demand, the amount of parking supplied exceeds the overall demand, driving up the cost of development (sometimes thereby suppressing development). Another result is that greater distances are created between destinations, making it more difficult to create walkable places. When every building is required to have an individual parking facility, the result is inconvenient for users and more expensive for business owners.

In addition, while buildings themselves are durable, land uses frequently change. Sharing parking creates more flexibility for a new use that may have a greater minimum requirement than a prior use. Without shared parking, the new use would need a variance, which it might or might not receive. With shared parking, any legal use can more easily be located within any existing building.

Some municipal zoning codes allow for or encourage shared parking, but codes are typically not specific enough to guide what is or is not permitted, are too restrictive to be applied, or require a variance or special permit. Beyond zoning codes, shared parking can be complicated——particularly with liability, maintenance, and various other elements. If a zoning code does not explicitly describe shared parking protocols, shared parking is less likely to occur.

Why should I care?

- **Provides more parking for less money.** Sharing parking allows for an increase of accessible parking supply, making better use of each parking space.

- **Creates availability.** A parker is more likely to find a parking space among a larger pool of shared spaces, especially when balanced among different land uses with different parking needs.

- **Provides more opportunity for infill development.** Small sites that cannot accommodate on-site parking can share underutilized parking nearby.

- **Is good for business.** Parkers can use one parking space for multiple trips, which means they can spend more time visiting shops and restaurants and less time circling to find a parking space. Moreover, increased foot traffic can engage new customers and generate sales growth.

- **Uses land efficiently.** Building fewer parking spaces can allow for more residential, office, and commercial space.

- **Reduces circling for a space (and congestion).** More parking spaces available to the public can reduce the need for circling, resulting in less vehicular congestion on streets.

What are the solutions?

Cities can directly or indirectly incentivize shared parking through zoning codes. There are a variety of approaches to allow and encourage shared parking:

- **District Sharing:** Allow for land uses in a defined district to share parking (Montgomery County, MD).

- **Free-Range Sharing:** Allow property owners to use shared-parking agreements to satisfy parking needs (Long Beach, CA).

- **For Mixed-Use Developments:** Include a specific shared-parking schedule for certain land-use types and groupings (Sioux City, IA).

- **Occupancy Based:** Let shared parking occur based on a demand study that shows that existing parking meets or is below a defined occupancy threshold (Marlborough, MA).

- **Minimum Provision:** Require that a certain amount of parking for each land-use type must be shared (Cambridge, MA).

- **Beyond the Minimum:** For developments that share parking beyond the minimum requirement, developers could have access to additional development rights, financial support through impact fees, or other means (Overland Park, KS).

- **Modest Minimums and High Maximums:** Allow for higher parking maximums for developments that build shared parking (Montgomery County, MD).

- **In-Lieu Fees:** Developers pay into a parking fund rather than build their own parking on-site parking spaces, and the municipality provides common parking facilities (Lake Forest, IL).

Though there are a range of ways to encourage and allow for shared parking, all zoning codes should clearly define terms, such as shared parking, reserved parking, remote parking, etc.

Examples

Columbia Pike: Arlington County, VA
Columbia Pike, a dense commercial and residential corridor in Arlington County, Virginia, enacted a form-based zoning code in 2003 that specifies parking goals, including shared-parking requirements for all private development. Shared-parking requirements include the construction of one shared space per 1,000 square feet of nonresidential gross floor area, with no maximum on shared spaces. Parking requirements may be met on-site or within the "parking zone" of a given development. If the development creates new on-street spaces, these count toward the shared-parking requirements. In lieu of providing shared spaces, the county may accept a one-time payment for each space not provided.

Santa Monica, CA
Santa Monica updated its zoning ordinance in 2015 to support and implement its 20-year vision and plan. Required parking is reduced through on-site and off-site shared parking with guidance and restrictions outlined in the ordinance. The code allows for shared parking in all nonresidential zoning districts and sets a minimum for the total number of spaces, which cannot be lower than one space per 500 square feet of floor area in commercial mixed-use developments. In addition, the code requires specific permits for off-site shared parking and allows for sharing on-site parking facilities if the parking demand from adjacent uses does not overlap.

What should I do first?

Steps		Actions
1.	Identify Parking Needs and Obstacles	• Determine parking demand and availability (utilization count, zoning code) • Review land-use trade-offs and economic opportunities (cost/revenue pro forma)
2.	Form a Coalition	• Identify project champions and communicate actively with involved stakeholders to gain community acceptance (developers, businesses, land owners, employees, residents, etc.)
3.	Develop a Regulatory Framework	• Assess zoning code, licensing/assessments, design guidelines, and enforcement protocol • Update necessary elements
4.	Support Shared-Parking Efforts	• Start with a suitable pilot project; coordinate operations and maintenance with nearby businesses and services • Determine revenue-sharing and enforcement frameworks
5.	Report and Monitor Performance	• Establish performance metrics to track parking utilization and supply • Be transparent with businesses, city officials, and public (users) • Conduct regular utilization counts; adjust zoning code as necessary

Learn More

Shared Parking: Sharing Parking Facilities Among Multiple Users: This entry in the Victoria Transport Policy Institute's *TDM Encyclopedia* offers guidance on which uses can easily share parking with each other, as well as an extensive list of technical references and additional case studies. http://www.vtpi.org/tdm/tdm89.htm

Parking Management for Smart Growth: This book by Professor Richard Willson of California State Polytechnic University, Pomona is aimed at planners and practitioners who want to learn more about how to maximize the use of parking. It also offers guidance on how to set parking rates, measure performance, incorporate new technology into your city's parking strategy, and deal with the politics of parking.

1. Parking policy

Create transit overlay zones

How does this strategy help your city?

For transit to be truly successful, transit service investments must be paired with investments in placemaking, a rich mix of land uses, and safe bicycle and pedestrian infrastructure. In many places, station areas do not realize their full potential because zoning codes prohibit transit-supportive development. Even worse, zoning codes may require parking minimums or other urban design elements that make driving alone the more attractive option despite the availability of good transit service.

Transit overlay zones are "floating zones" that implement a variety of development regulations or incentives that support transit use and foster vibrant neighborhoods around stations. Such zoning allows station-area development to include characteristics that make an area more supportive of transit ridership, for example, through pedestrian-oriented design, a mix of uses, more transportation options, and denser development.

Why should I care?

- **Builds on investments in transit.** The types of development permitted and encouraged with a transit overlay zone help communities to make transit use attractive and maximize ridership, making the most of transit investments.

- **Creates mixed-use, walkable areas around transit.** Unlike the traditional zoning model, transit overlays allow a mix of compatible uses and more compact development, which both support a more walkable and lively urban center around a transit station.

- **Increases housing variety and affordability.** Higher-density, mixed-use zoning allows a wider variety of housing types to be built that may not be permitted under other types of zoning. Siting housing close to transit, employment, and amenities can reduce household transportation costs, and lower-income households in particular can benefit from this high level of access.

- **Is good for business.** Transit overlays spur economic development. By locating businesses, housing, and transit service in close proximity, there is a natural draw to local businesses.

- **Provides a proof of concept.** Adopting a transit overlay zone is a relatively quick way to get the right zoning around transit if broader zoning reforms require a lengthier and more politically difficult process.

What are the solutions?

Transit overlay zones usually extend a quarter-mile or half-mile radius from a station, which is generally considered a "walkable" distance to high-capacity transit service. Transit-oriented development (TOD) makes walking to transit a safe and convenient option, while it also promotes a thriving neighborhood and active street life around a station. Characteristics of TOD include compact development that is higher density, a vibrant mix of uses, pedestrian-oriented street design and attractive streetscapes, and supportive transportation options like biking and carshare.

- **Mix of uses.** Encourage a high-intensity mix of uses, including retail, office, residential, civic, and cultural activities.
- **Compact development.** Allow higher-density development, including more compact development and taller, larger buildings.
- **Reduced parking minimums.** Require fewer parking spaces to maximize area for other uses and to encourage travel by modes other than driving (see "Rightsize parking requirements" strategy sheet).
- **Pedestrian-oriented design.** Encourage building design and streetscapes that foster a comfortable, convenient, and accessible pedestrian environment.
- **Alternatives to driving.** Provide carshare, bike parking, and other transportation options, in addition to excellent transit service.
- **Housing variety and affordability.** Require or incentivize the construction of mixed-income housing accessible to a range of household types, sizes, and abilities.

Examples

Chicago, IL
Chicago's transit-oriented development ordinance applies to development within a quarter-mile of a transit station and as far as a half-mile on pedestrian streets, which are designated to preserve a pedestrian-friendly character. Higher density is permitted within the district, and parking minimums are significantly reduced or eliminated altogether for most land uses. The ordinance also provides an increased density bonus in exchange for providing affordable housing but requires that affordable units be included on-site rather than through an "in lieu" fee to the city.

Vancouver, WA
Vancouver established transit overlay district zoning to encourage higher densities and transit-friendly urban design around transit stations. The designation includes voluntary, incentive-based provisions that can be applied to properties within the districts at an applicant's request. Provisions for overlay districts include higher-density development, reduced parking minimums, pedestrian access and circulation, and a comfortable and attractive street environment. The city defines two tiers of districts, supporting either intense or more moderate increases in density.

Charlotte, NC
Charlotte's TOD zoning districts allow compact, mixed-use development. Development standards call for the provision of high-quality walking, biking, and transit facilities. Districts also encourage shared parking and include reduced parking minimums. The city also has a transit-supportive overlay district, which can be applied to areas that are outside designated TOD zoning districts but still within a half-mile of a transit station. The overlay district includes transit-supportive and pedestrian-oriented development regulations and uses and encourages existing properties to transition to more transit-supportive development.

What should I do first?

Steps		Actions
1.	Define Goals and Performance Measures	• Develop an overarching transit-oriented development strategy to guide the process • Work with key stakeholders to develop clearly defined strategic goals for TOD zones • Establish performance metrics to track progress and communicate results
2.	Define Geography and Identify Areas Where Overlay Applies	• Establish walk and bike sheds that are appropriate for the context of each district • Focus initial efforts on the highest-capacity/active transit nodes
3.	Establish Development Standards, Regulations, and Incentives	• Develop context-appropriate, goal-driven standards for TOD zones • Standards should address some or all of the following: uses and housing affordability, development and population densities, parking management, street design, urban form, and transportation options programs
4.	Pursue the Zoning Amendment Process	• Introduce TOD regulations into the formal zoning process • Define conditions upon which TOD overlays can be triggered through the formal zoning process

Learn More

Puget Sound Regional Council. "Featured Tool: TOD Overlays." http://www.psrc.org/growth/housing/hip/alltools/tod.

Victoria Transport Policy Institute. "Transit Oriented Development: Using Public Transit to Create More Accessible and Livable Neighborhoods." In *TDM Encyclopedia*. http://www.vtpi.org/tdm/tdm45.htm.

Metropolitan Planning Council. "Chicago's 2015 TOD Ordinance." http://www.metroplanning.org/tod-ordinance.

Charlotte-Mecklenburg Planning Department. "Transit-Oriented Development." http://charlottenc.gov/planning/Rezoning/StakeholderGroups/TextAmendmentStakeholderGroup/Pages/Transit-Oriented-Development.aspx.

City of Vancouver, Washington. "Transit Overlay District." Chapter 20.550 in *Vancouver Municipal Code*. http://www.cityofvancouver.us/vmc?tid=334&throbber=1.

City of Denver, Colorado. *Transit Oriented Denver* TOD Strategic Plan. https://www.denvergov.org/content/denvergov/en/transit-oriented-development.html.

2. Change development review to cause less traffic

Eliminate Level of Service from transportation impact review

1. The liveliest and most attractive streets in a city or town often rate poorly on automobile "level of service" measures. If cities measure the success of streets with rigid measures of vehicle delay, it can become harder to create great places

How does this strategy help your city?

Many communities work with developers to assess the impact on the community of a proposed development project and identify appropriate actions to reduce or mitigate any negative impacts. Until recently, most communities measured the transportation impacts of new development in terms of the automobile traffic expected to be generated and did not consider multimodal options for getting around.

As a result, development projects were assessed based on automobile level of service (LOS), which measures vehicular, but not person, mobility. LOS analysis uses an A to F scale, where LOS A means that the number of vehicles on the road is well below the road capacity and LOS E—F indicates that the roadway is at or over capacity. The driving experience is unimpeded under LOS A, while under LOS E—F, drivers are in "stop-and-go" conditions. Ironically, places with the most F-grade intersections tend to be our most vibrant neighborhood commercial strips and urban centers.

When a development is predicted to impact level of service, cities often require developers to "mitigate" that impact by improving automobile traffic flow, for example, by widening a roadway or adding turn lanes. These solutions force roads to be built at excess capacity and engineered for nonstop, high-speed automobile movement, all of which have a negative impact on people walking, bicycling, or riding transit, and can induce the very traffic that they are designed to relieve.

LOS-optimizing solutions can cause a variety of unintended outcomes, including depressed development, degraded walking environments, and undermined placemaking efforts.

The methods used to analyze level of service also tend to focus on traffic conditions during the most congested periods of the day, forcing roads to be built to handle the expected automobile demand that might only occur for 15 or 30 minutes during rush hour. Solutions that "fix" traffic at peak times are all the more inappropriate at off-peak times of day, leaving less space in the roadway for street trees, bicycle facilities, or sidewalks.

Cities are increasingly deciding that LOS measures are just one element in the range of mobility options available in more urban, walkable, and transit-rich neighborhoods. Many cities today aim to attain LOS C—D, but if you're building a great neighborhood with many transportation options, stop-and-go traffic during the morning and afternoon rush may be a trade-off that businesses, workers, and residents are willing to accept. You should have that conversation through community planning processes instead of forcing developers to widen roads in an effort to avoid impacting level of service.

Why should I care?

- **Improves economic viability of neighborhoods.** Places whose intersections have poor LOS ratings tend to be vibrant neighborhood commercial strips and urban centers. Improving LOS causes harm to the areas in question.

- **Improves efficiency of streets networks.** Building roads to handle congestion that might only occur for 15 or 30 minutes during rush hour leads to excess capacity that could be seen as economic waste for more than 95% of any given day.

- **Improves effectiveness and efficiency of land usage.** In many cases, LOS prevents infill development, encouraging sprawl and greenfield development, and forcing residents to become more reliant on automobiles to reach destinations in ever-expanding exurban and suburban landscapes.

- **Returns focus to people, not vehicles.** LOS focuses on the movement of vehicles, not people. For example, under LOS, the delay to a full transit bus is equivalent to that of a single-occupant car.

- **Improves bicycle and pedestrian access and environments.** Under LOS standards, pedestrians and people riding bicycles are considered impediments to car movement. Therefore mitigations, such as reducing pedestrian crossing-signal time frames or building expensive tunnels and bridges, are often implemented to ensure that pedestrians and people on bicycles do not get in the way of traffic flows.

- **Helps achieve transportation goals.** The effects of LOS mitigations are often detrimental to stated goals, including improving safety, reducing the number of drive-alone trips, and increasing the number of people walking and cycling.

What are the solutions?

In order to manage transportation demand more effectively, many cities throughout the United States have moved away from a sole focus on auto-oriented metrics (e.g., LOS standards) as part of transportation impact and development review processes. Instead, development projects can be evaluated using transportation metrics that better align with the community's environmental, economic, health, and equity goals. Using new metrics and tools in the analysis process will move the analysis away from a focus on intersection congestion and qualitative assessments of the driver's experience and more toward the experience of all types of travelers.

- **Institute LOS Exemptions.** One option is to adopt policy language that states that all project applications within a specific subarea are exempt from requirements to conduct vehicle LOS analysis. This maintains existing LOS thresholds for certain signalized intersections but exempts certain areas where a city is promoting transit-oriented development and walkable neighborhoods.

- **Assess vehicle miles traveled (VMT).** Estimating the VMT a project is expected to generate is an increasingly popular alternative to LOS. The benefit is that it captures the related environmental outcomes these trips have on the broader region, rather than narrowly focusing on intersections within a small radius of the project. Specific thresholds need to be determined on a case-by-case basis to identify the acceptable level of VMT output from a specific project relative to current and future VMT levels.

- **Apply impact fees.** Impact-fee programs can be used for multimodal improvements, allowing cities to improve multimodal infrastructure, and in turn, reduce the desirability of driving alone. This approach is particularly useful when there is a lot of growth in an area, because it generates funds to invest in network improvements that make biking, walking, and taking transit more attractive.

- **Integrate transportation options into the development review process.** Ordinances can require employers and/or developers to establish programs to reduce the number

of people traveling to the site by single-occupancy vehicles (see the "Integrate Transportation Options into the Development Review Process" strategy sheet).

Examples

San Francisco, CA: VMT Analysis
San Francisco is in the process of implementing a citywide transportation options program, inclusion of VMT (and other metrics) in the traffic impact study process, and impact-fee programs. These policies are designed to work together to reduce auto-trip generation from new developments. The changes were driven by a recognition that the previous LOS-based review ran counter to the city's goals and policies, such as its "Transit First" policy, ambitious bike mode-share goals, and guidelines included in its Better Streets Plan. Policy changes have been pursued through an effort called the Transportation Sustainability Program, which consists of the following:

- Modifications to the environmental review process, replacing automobile delay (LOS) with VMT as the key transportation performance metric

- A Transportation Sustainability Fee, replacing the previous Transportation Impact Development Fee, to fund improvements to transit, bicycle, and pedestrian infrastructure and service

- A TDM ordinance with requirements that scale based on the number of new parking spaces planned on a site

Pasadena, CA — VMT Analysis
During its 2009 General Plan Update process, Pasadena began exploring a new approach to transportation-impact analysis that was more aligned with its Land Use and Mobility Element Update. Following an extensive public outreach process, the city drafted new guidance that relied on VMT as a key metric. Now, in order to incorporate standards that measure multimodal networks more effectively and reflect the General Plan's expanded emphasis on sustainability and walkability, Pasadena requires that the following metrics also be analyzed when assessing new developments:

- Vehicle trips per capita

- The proximity and quality of the local bicycle network, determined by the percentage of dwelling units and jobs within a quarter-mile of a bike path or protected bike lane

- The proximity and quality of the transit network, determined by the percentage of dwelling units and jobs within a quarter-mile of a transit station or high-frequency bus route

- The quality of pedestrian accessibility, determined by a Pedestrian Accessibility Score, which measures the number of different land-use types within a five-minute walk

Santa Monica, CA — Impact Fees

Santa Monica uses its citywide transportation-impact fee to support both multimodal infrastructure and transit operations. Proceeds from the impact fee can be spent on pedestrian and bicycle infrastructure, transit operations, and other programs and investments that help create "alternative transportation choices and reduce greenhouse gas emissions."[1]

In February 2013, the City of Santa Monica adopted a citywide transportation-impact fee as part of the Land Use and Circulation Element (LUCE) of its General Plan. The LUCE identified a number of policies and programs intended to encourage walking, biking, and transit use, to in turn reduce evening peak-hour vehicle trips. The key metric for evaluating progress toward this goal is the volume of evening peak-hour vehicle trips to and from the city.[2] An impact fee was determined to be an effective and reliable citywide mechanism to fund infrastructure and services that support new development. The investments in alternative modes from this fee program generally offset vehicle demand, and in turn, developments generated fewer evening peak-hour trips.

1. "Transportation Impact Fee Program." Chapter 9.66 in Santa Monica Municipal Code. http://www.qcode.us/codes/santamonica/
2. Nelson\Nygaard Consulting Associates. City of Santa Monica Transportation Impact Fee Nexus Study. 2012. https://www.smgov.net/uploadedFiles/Departments/PCD/Transportation/Developers/Santa-Monica-Nexus-Study.pdf.

Bellingham, WA: Multimodal Level of Service

Cities in Washington are required to comply with state "concurrency" laws, aimed at ensuring that adequate transportation facilities are available when new development occurs. For many years, Bellingham's concurrency regulations only took into account automobile LOS. Planners realized that this approach restricted the ability of the city to build downtown, and was pushing development further out and worsening overall traffic.

In 2008, the city adopted a multimodal approach.[3] The city estimates how much capacity is available on its streets, on transit, and on the biking and walking networks in each of 15 defined neighborhoods or "concurrency service areas" (CSAs). It publishes an annual report describing how many "person trips available" exist in each of the 15 CSAs; new developments are allowed only if they create fewer person-trips than are available. If a development would create more person-trips than are available in the CSA, it must mitigate this (for example, by building sidewalks in priority areas).

3. "Transportation Concurrency." City of Bellingham https://www.cob.org/services/planning/transportation/Pages/multi-modal-trac.aspx

While the examples listed above represent current best practice, this policy area is seeing rapid change as more localities update their development review processes to incorporate a multimodal approach.

Learn More

Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities: This 2010 book from the Institute of Transportation Engineers explains the importance of "context sensitive" approaches to road design in walkable neighborhoods. One recommendation is that transportation engineers can justify lower levels of automobile LOS in places where walkability is important. Additional resources are available on ITE's "Context Sensitive Solutions" webpage.

"Why California Accidentally Encouraged Driving, and How That's About to Change" (www.spur.org/news/2016-06-30/why-california-accidentally-encouraged-driving-and-how-thats-about-change): This 2016 article, published on the blog of the Bay Area think tank SPUR, provides an accessible overview of how overreliance on automobile LOS has made it harder for cities to build more compact development.

What should I do first?

Steps		Actions
1.	Determine the appropriate LOS alternative	• LOS alternatives will require strong political and community support; determine which LOS alternative is appropriate for your community • Follow steps #2—#6 according to priorities set above
2.	Design contextually appropriate VMT metrics	• Determine specific thresholds to identify acceptable levels of VMT output from a specific project relative to current and future VMT levels
3.	Ensure that VMT-based metrics are applied with careful paid attention to land-use and transportation modeling efforts	• Determine whether VMT thresholds should be measured against local or regional VMT measurements or within another geographic area • Allow specific transportation metrics to continue to be applied to ensure that the system operates at acceptable service levels and that public safety is maintained
4.	Where LOS is retained, amend adopted thresholds of significance to allow lower LOS grades when contextually appropriate	• Policy should indicate that it is acceptable for a specific development project or a collection of projects to cause the LOS to fall to and remain at E or F on any arterial, connector, or local street segment or intersection, where appropriate • Provide a more focused review of non-auto needs along major pedestrian, transit, and bicycle corridors and allow for concentrated development that is conducive to active transportation modes and sustainability
5.	Integrate transportation options programs as part of the new development process	• Coordinate with and among the general community, public agencies, private business, and developers to implement transportation options programs as part of mitigation • Enforce programs geared towards specific uses based on established thresholds, parking standards, and the requirements of transportation options programs (see the "Integrate transportation options into the development review process" sheet)
6.	Develop/implement impact fees	• Conduct a technical nexus study to determine the economic implications related to traffic and transportation and the measurable amount of impact to transportation facilities caused by development projects • Establish "fair contribution" metrics • Update impact fees on a regular basis to ensure fees are relevant and that they account for inflation and other related fiscal matters

2. Change development review to cause less traffic

Rethink trip-generation and parking standards

How does this strategy help your city?

Communities often work with developers to estimate parking demand and vehicle trip generation for new development. The most common sources of this data are the Trip and Parking Generation manuals published by the Institute of Transportation Engineers (ITE). Historically, the ITE has collected data at single-use, typically suburban sites without transit access or good bicycle and/or pedestrian infrastructure. These data are used as "development comps" and misapplied in mixed-use urban contexts with multiple transportation options. In these areas, the manuals often predict high levels of car traffic——which developers are obligated to build parking for or mitigate by widening roads——that don't actually materialize.

There's a growing awareness among cities that onerous requirements may stifle development and that by over-mitigating they may have unwittingly induced additional auto traffic.

In more urban, walkable, and transit-rich neighborhoods, cities are increasingly seeing development with reduced vehicle trip generation and parking demand coupled with increased use of transit, walking, and bicycling. In transit-oriented developments, for example, the ITE Trip and Parking Generation manuals lack data on vehicle trips and parking, resulting in the overestimation of parking needs and vehicle impact on nearby roadways.

Trip Generation Standards vs. Reality in Development Near Transit

Development	ITE vehicle trip estimates (daily)	Actual vehicle trips (daily)	Actual vehicle trips as % of ITE estimates
Englewood, CO	13,544	9,460	70%
Wilshire/Vermont (Los Angeles, CA)	5,180	2,228	43%
Fruitvale Village (Oakland, CA)	5,899	3,056	52%
Redmond, WA	1,767	661	37%
Rhode Island Row (Washington, DC)	5,808	2,017	35%

Researchers from the University of Utah reviewed five developments near transit. These developments generated far fewer vehicle trips than the Institute of Transportation Engineers' *Trip Generation Manual* predicts. An overreliance on this manual can cause developers to overbuild parking. For more information, view the "Trip and Parking Generation at Transit-Oriented Developments" project at the National Institute for Transportation and Communities (nitc.trec.pdx.edu/research/project/767).

Why should I care?

- **Provides a more accurate picture of transportation impact.** Development in urban areas with more transportation options is likely to generate fewer vehicle trips than in areas with low density and single-use zoning and fewer transportation options. There may also be a greater number of total trips in high-density areas due to more frequent and shorter trips. Trip-generation and parking-demand estimates in urban areas will be more realistic if they are based on observed behavior in a local context.

- **Encourages more appropriate traffic impact mitigations.** More complete information about the impact of new development allows cities to invest in more appropriate mitigation measures that match actual transportation behavior, such as enhanced pedestrian facilities or on-site transportation options programs. This information can also help cities better communicate about potential impact and address the concerns of residents and stakeholders.

- **Reduces costs of development.** Parking increases the overall cost of development and often uses more land than the primary use. Context-sensitive parking estimates can mitigate the cost for developers by providing a more realistic recommendation for parking supply. Reducing this cost can encourage infill and redevelopment opportunities in urban areas.

- **Helps reduce costs of living.** Building new parking in urban areas adds considerable project costs, which in turn increases the price of housing. This is particularly true for housing affordability, as the cost of providing additional parking is frequently bundled into housing costs and passed along to residents, who then bear the cost of potentially unused parking spaces.

What are the solutions?

- **Focus on modally neutral access, not access by one particular mode over others.** There is no external or preexisting demand for either parking or automobile access. There is only demand for access to sites; how that demand is met depends on how the site is designed and on the area-wide transportation system.

- **Develop a localized trip-generation model that accounts for trips by person and mode, not just vehicles.** Estimate trip rates and mode share based on travel behavior at similar sites and community objectives, accounting for the development type, land-use context, and transportation options that are available; identify mitigation strategies using this information.

- **Engage in a "rightsizing parking" project to assess parking requirements and help developers balance parking supply and demand.** Collect data on parking utilization in different types of land-use and development contexts. Base parking-demand estimates for new developments on actual usage at comparable locations. (See the "Rightsize Parking Requirements" strategy sheet.)

- **Identify mitigation strategies that are appropriate to local transportation needs.** Cities can recommend or require several strategies that can mitigate the estimated transportation impact of a new development. These include improvements to the pedestrian environment, on-site bicycle parking, free transit passes for residents, or shared vehicle parking.

Examples

Washington, DC
The District Department of Transportation (DDOT) conducted a study on multimodal trip generation at multiple development sites across the city, collecting data on person trips and mode share, as well as parking supply, available transportation options, and development context. The study confirmed that in a dense setting, person trips were higher and vehicle trips lower than predictions based on the ITE manual. DDOT is working to develop its own trip-generation models and plans to lead a multi-jurisdictional effort to build an urban trip-generation database.

King County, WA
Responding to historic oversupply of parking, King County, Washington, developed a Right Size Parking Calculator to demonstrate to developers how they could have a more balanced approach to parking supply in the region. The calculator is based on current local data of actual parking use collected from more than 200 developments in urban and suburban settings. Occupancy data was correlated to building type, parking pricing, population density, and employment density. The County also pursued several demonstration projects to build on the findings of the Right Size Parking Project and apply them to new developments.

San Francisco Bay Area, CA
TransForm's GreenTRIP (Traffic Reduction + Innovative Parking) Parking Database is the result of an ongoing data-collection effort providing parking-utilization data and development characteristics for 80 multifamily residential sites in the Bay Area. Building on this work, the recently launched GreenTRIP Connect tool allows developers to estimate the potential transportation impact based on location, development characteristics, and utilization of demand-management strategies. In addition, GreenTRIP's Certification Program works with municipalities and developers to incorporate transportation options strategies into new development, with the goal of reducing traffic impact and increasing housing affordability.

Arlington County, VA

Arlington County is a rapidly growing community located in the Washington, DC, metro area, with development ranging from lower density suburban areas to more urban town centers and high-density, transit-oriented development. The county is currently conducting a study to assess actual trip-generation and parking-demand rates at 35 high-density residential developments, including counts of vehicle trips and parking utilization, as well as counts and intercept surveys of users accessing properties by other modes. In addition, the study includes an assessment of access to alternative modes and the presence of transportation options programs. The data collected will ultimately be compared to current local and national methods of calculating vehicle trip generation and parking supply. These results will inform local staff and decision makers as they assess the performance of residential site plans relative to county transportation objectives and guide the ongoing implementation of parking and TDM requirements in Arlington.

What should I do first?

Steps		Actions
1.	Measure and Assess Existing Travel Behavior	• Create a database of existing development and travel behavior, including data on trip generation, parking demand, and access by other modes, as well as information about the development site and context • Perform ongoing data collection to provide more complete information for decision makers
2.	Develop Tools for Estimating Development Impact	• Compare observed rates to those predicted by existing standards or requirements to determine where there are mismatches • Develop a localized trip-generation model based on actual travel behavior that accounts for trips by person and mode, not just vehicles • Perform a "right size parking" study to determine actual parking demand • Develop a model to estimate parking demand at new developments based on the parking utilization and other characteristics of comparable development sites
3.	Identify Appropriate Mitigation Strategies and Incentives	• Develop a selection of strategies and incentives that developers can utilize to mitigate transportation impact for users of all modes, tailored to different land-use contexts and community transportation needs

Learn More

GreenTRIP Connect (connect.greentrip.org/): This easy-to-use tool, developed by the Bay Area nonprofit TransForm, allows anyone to estimate the demand for parking in a hypothetical residential development. It shows how parking demand changes in response to project location. It also shows how changes in the price of parking and the use of incentives (like discounted transit passes and carshare memberships) can lower demand for parking.

Right Size Parking Project (metro.kingcounty.gov/programs-projects/right-size-parking/): This detailed study and toolkit was developed for the Seattle region by King County Metro. It shows the amount of parking that is used in different parts of the region, and also includes a "parking calculator" (somewhat similar to GreenTRIP Connect) that allows users to estimate parking demand in hypothetical residential developments.

Mixed-Use Trip Generation Model (MXD) (www.epa.gov/smartgrowth/mixed-use-trip-generation-model): This Excel-based model was created by the U.S. Environmental Protection Agency for local officials, consultants, and developers to use to estimate trips in new mixed-use developments.

Evaluation of Trip Generation in Highly Urbanized Areas (sites.google.com/a/dc.gov/ddot-research-program/projects-and-studies/current-research/trip-gen): The District Department of Transportation in Washington, DC has been developing multimodal trip generation rates that better reflect the relationship between land use, transportation and travel demand in cities. This ongoing research project is not yet reflected in agency practice, but is a useful illustration of how standard trip-generation practices are inappropriate in dense neighborhoods.

2. Change development review to cause less traffic

Integrate transportation options into the development review Process

How does this strategy help your city?

Developments that support transportation options—for example, by providing on-site carsharing and discounted transit passes—substantially reduce driving by tenants and require less parking overall. Transportation options programs (also called *transportation demand management* or TDM programs) are a cost-effective way to reduce single-occupancy vehicle trips. If these options are not considered as part of the development review process, they might be implemented after-the-fact or not at all.

What are transportation options strategies?

Developers can integrate transportation options strategies to help mitigate the projected impacts of new developments. Strategies include:

- Streetscape improvements to encourage walking connections from transit
- Bicycle parking
- On-site showers and lockers
- Subsidized or free transit passes
- On-site carshare parking
- Rideshare matching services and/or subsidies
- Signs to display real-time information for nearby transit routes
- Priced parking

(The City of San Francisco provides a comprehensive menu for developers to choose from: http://default.sfplanning.org/plans-and-programs/emerging_issues/tsp/TDM_Menu_Options-062316.pdf)

Why should I care?

- **Integrating transportation options requirements into the development process ensures that they happen.** If transportation options are not considered as part of the development review process, they risk not being implemented. Cities can develop requirements for incorporating facilities and programs into new developments that support biking, walking, taking transit, and driving alone, or provide incentives for developers to include them.

- **Transportation options measures that are added later may not be as effective.** If transportation options strategies are not considered as part of the development review process, they might be implemented as afterthoughts and underused, thereby reducing the return on these types of investments. By tying requirements for transportation options measures into the development process, cities can ensure that they are actually implemented, that they are effective, and that they help achieve broader community transportation goals.

- **It can be difficult for cities to make sure that any transportation options program agreements are passed along to the subsequent property holder.** By tying transportation options requirements to a property through the development process, cities can ensure that these measures continue after a property changes hands. Ongoing monitoring is critical to success.

What are the solutions?

- Cities can implement transportation options ordinances that require or incentivize developers to implement transportation options plans as part of the development review process. Such ordinances outline requirements for programmatic or infrastructure elements that will be implemented by the building manager or employer throughout the lifetime of the building.

- The purpose of a transportation options plan is to monitor and mitigate the transportation impacts of a specific site over time. Such a plan details the process through which a developer and subsequent tenants commit to measures that decrease single-occupancy vehicle travel to the facility over time. This process provides a menu-based approach for developers and tenants to implement supportive programs that encourage and educate employees and residents about travel options. The plan includes targets (e.g., mode split, emissions, or reduced vehicle miles traveled), a description of strategies used to meet those targets, and evaluation measures to assess progress toward those targets.

1. A Portland WES commuter rail train just outside of Beaverton Transit Center.

Examples

Cambridge, MA

In the late 1990s, Cambridge adopted two transportation management policies that regulate development review. The Parking and Transportation Demand Management Ordinance (PTDM), adopted into the city's zoning code, sets forth TDM and mode-share reduction requirements based on the scale of project and the amount of parking provided. New developments that exceed a threshold of 50,000 square feet are required to conduct a detailed traffic review that also identifies other possible parking and traffic-mitigation measures, including transportation demand management measures. This program has proven very successful: in 2011, the average drive-alone mode split for participating businesses was 55%. By 2015, the actual drive-alone rate for PTDM properties was 38%, compared to an average target of 45%. Over 100 projects have detailed monitoring plans, encompassing 24.3 million square feet, 18,000 parking spaces, 21,000 employees, and 12,000 commuting graduate students.[2]

Arlington County, VA

Arlington County Commuter Services (ACCS) established the Transportation Demand Management Program for Site Plan Development in 1990 to work with developers and property managers to mitigate the transportation impacts of residential and commercial development by increasing the availability, awareness, and use of transit, ridesharing, carsharing, biking, bikesharing, and walking. Site Plan Review is voluntary but incentivized through density bonuses. Approximately 90% of all development is now conducted through the Site Plan review program; the remaining 10% primarily consists of single-family homes or small townhome developments. This leverage has allowed the county to achieve high levels of transit-oriented development supported by a renowned travel options program.

2. Correspondence with City of Cambridge Parking and Transportation Demand Management staff.

San Francisco, CA

San Francisco created a Transportation Demand Management (TDM) Program to compel developers to incorporate more transportation options in new buildings, with the goal of reducing traffic in the city. The program applies to most new development—buildings with at least ten dwelling units, ten or more beds in a group housing or residential care facility, or 10,000 square feet of nonresidential space—and changes of use of nonresidential space greater than 25,000 square feet. Under the ordinance, developers must provide measures from a menu of transportation options programs, each of which is assigned a point value. For example, providing subsidized transit passes to tenants is worth up to 8 points; an on-site bicycle repair station is worth 1 point. The more car parking is planned in the building, the more transportation options measures it must include.

Pasadena, CA

The City of Pasadena adopted requirements for transportation management programs into their code of ordinances in order to implement the requirements of the Los Angeles County Metropolitan Transportation Authority's Congestion Management Program. Under the city's ordinance, development projects that meet certain thresholds are required to provide employee transportation information services and a transportation plan, as well as report on progress annually. Development projects subject to the ordinance generally include larger multifamily residential and mixed-use projects, and nonresidential projects between 25,000 and 75,000 square feet gross floor area. The transportation plan must be approved by the Director of Transportation prior to the issuance of a building permit. Progress must be documented through an annual survey.

What should I do first?

Steps		Actions
1.	Review existing policies and regulations	• Review local policy documents (plans, policies, and development regulations) to determine whether they can provide any support for an expanded local transportation options program (for example, existing requirements for on-site bicycle facilities)
2.	Determine eligible facilities, programs, and other strategies	• Determine the appropriate thresholds that would trigger a site-based transportation options plan, such as developments within a specific district, those that are over a certain square footage, or those with a certain number of employees
3.	Identify appropriate strategies to incorporate transportation options requirements into the development process	• Provide a menu of options that developers can choose to incorporate, based on community goals, the type of development project, and the surrounding environment • Provide a template for the transportation options plan for developers to use
4.	Update zone code or administrative rules	• Require development of a transportation options plan in conjunction with incentives or bonuses, such as an increased floor area ratio (FAR) or reduced parking requirements • Require prospective developers to submit a transportation options plan with each land-use application • Require an approved TDM plan as a condition of a project's approval • Apply requirements for supporting transportation options to specific zones or districts • Apply requirements to certain types of developments or users, such as large employers
5.	Establish performance monitoring and enforcement mechanisms	• Establish how requirements, especially programmatic measures, will be passed on to subsequent tenants or owners during the lifetime of the development • Tie requirements and targets back to community plans and goals • Monitor performance measures annually or biannually to determine which programs are successful and how building tenants are choosing to travel

Existing Process

Developer applies for a building permit

Transportation impact study is triggered

Vehicle trip generation is estimated using ITE standards

Transportation impacts are estimated using auto centric level of service (LOS) standards

Mitigation requirements are set based on auto traffic during the busiest times of day

More parking is built

Building Permit

Transportation Study

Estimating Multimodal Trip Generation

Estimating Travel and Transportation Impacts

Mitigating Impacts

The Result

Ideal Process

Developer applies for a building permit

Transportation impact study is triggered

Vehicle trip generation is estimated based on the local context

Transportation impacts are set based on local context; LOS standards are relaxed or replaced

Strategies such as transit pass programs and bus stop improvements mitigate potential impacts

More walkable, vibrant communities are built

Learn More

Examples of local and state regulations that apply to developments:

City of Cambridge. "Parking and Transportation Demand Management Ordinance." https://www.cambridgema.gov/CDD/Transportation/fordevelopers/ptdm.

Arlington County Commuter Services. "Transportation Demand Management for Site Plan Development." http://www.commuterpage.com/pages/special-programs/tdm-for-site-plans/.

San Francisco Planning Department. "SHIFT: Transportation Demand Management." http://sf-planning.org/shift-encourage-sustainable-travel.

City of Pasadena. "Transportation Management Program." Chapter 10.64 in *Code of Ordinances*. https://www.municode.com/library/ca/pasadena/codes/code_of_ordinances?nodeId=TIT10VETR_CH10.64TRMAPR.

Oregon Department of Transportation. *Transportation Demand Management (TDM) Plans for Development*. www.oregon.gov/LCD/TGM/docs/TDM%20guide%20and%20model%20code%20final.pdf

3. Design streets to move more people

Making transit work in cities means raising the level of design across the entire street network to prioritize transit and walking. Cities control their streets and can take the lead on transit-friendly streets, creating dedicated lanes and transitways, comfortable stops and stations, and coordinating with transit agencies on improvements to intersections and signals. Cities should treat walking as the foundation of the transportation system; this means wider sidewalks and narrower car lanes, traffic islands, and other pedestrian amenities.

Understanding of how street design and public transit interact is important not just for busy commercial districts, but also for residential neighborhoods. The choice for street designers is not "bus lane or nothing." Careful curbside management, boarding bulbs, and high-quality shelters can make transit more reliable and pleasant. Even seemingly minor decisions, like whether to place bus stops before or after intersections, affect transit reliability and travel time.

Luckily, city leaders now have a comprehensive resource to help them understand this interaction. The *Transit Street Design Guide*, published in 2016 by the National Association of City Transportation Officials (NACTO), summarizes leading practice on how cities can create streets that are safe, pleasant, and support multiple transportation options.

The guide offers guidance on:

- How to use transit-only lanes, boarding bulbs, and other street design features.
- How the placement and design of transit stops and stations affect transit reliability and integration with walking, biking, and driving.
- How intersection design and traffic signals can be used to optimize transit, pedestrian, and cycling movement.
- How to make transit-first design work on both neighborhood streets and major corridors.

High-quality transit allows a city to grow without slowing down. Transit that can be relied on makes it possible to develop vibrant, walkable urban places——the kinds of places that city residents increasingly demand.

(For more information on speeding up transit, see our sheet "You may not run transit, but you can lead.")

Examples

Seattle RapidRide corridors
The city of Seattle worked with transit agency King County Metro to identify ways to speed up transit on several RapidRide corridors with high-frequency bus service. These corridors don't include dedicated lanes from end to end, but instead use a variety of measures like "queue jump" lanes and bus bulbs to keep the bus moving.

First and Second Avenue, New York City
In 2010, New York rebuilt First and Second Avenue as "complete streets" with bus-only lanes, protected bike lanes, and pedestrian islands. Bus speeds improved by over 15%, bus ridership increased by 9%, and traffic injuries fell by 14%.

1. Bus lanes for Select Bus Service in New York City, on Webster Avenue in the Bronx.

Resources

The National Association of City Transportation Officials offers several design guides that cities can use to design streets that balance transit, walking, cycling, and driving. The *Transit Street Design Guide* is described above. NACTO has also developed the *Urban Street Design Guide* and *Urban Bikeway Design Guide*.

The Institute for Transportation Engineers also offers a manual, *Designing Walkable Urban Thoroughfares: A Context Sensitive Approach*, that engineers can use to assist them in the design of pedestrian-friendly city streets.

2. NACTO's publication *Urban Street Design Guide*.

4. Design walkable, transit-friendly neighborhoods

How does this strategy help your city?

Walkable cities and neighborhoods are the foundation of vibrant cities that attract people, which is good for public life and for businesses. Transit helps these areas to thrive, but investments in transit must be supported by well-designed streets and sidewalks, because that's where every trip begins and ends. Sidewalks and streets that are safe and appealing for walking also encourage greater levels of physical activity, which positively influences public health. With a greater share of trips made through walking and transit, cities can reduce the overall number of vehicle miles traveled by their residents, which in turn helps cities reduce emissions of greenhouse gases that contribute to global climate change and reduces local air pollution that contributes to respiratory illnesses.

Why should I care?

- **Pedestrian friendly streets foster business.** When streets are pleasant places to be and designed with the walking environment in mind, more people are likely to use them. Increased pedestrian traffic translates into increased sales. A worldwide survey of cities revealed that investments in pedestrian infrastructure improvements resulted in increased retail activity in those areas, decreased retail vacancies, and increased sales tax revenue.[2] Other studies show that while shoppers who drive to retail locations spend more per visit than people who walk and take transit, the latter two groups visit more frequently, resulting in greater overall spending.

- **Well-designed streets slow traffic speed and improve safety.** For many years, cities have designed streets primarily for one intended use: to move motorized traffic quickly and efficiently. This focus on vehicular needs, rather than the needs of people in the street environment, has resulted in streets that are unsafe for people biking and taking transit, people walking, and people with physical limitations. Shifting the focus of streets to serve all users' needs by improving pedestrian infrastructure and slowing vehicle speeds reduces the number and severity of collisions and makes neighborhoods more comfortable and livable. Careful street-design considerations naturally encourage slower speeds, increasing the safety for everyone.

2. Richard Campbell and Margaret Wittgens, *The Business Case for Active Transportation: The Economic Benefits of Walking and Cycling*, (Gloucester, ON: Go for Green, 2004), http://thirdwavecycling.com/pdfs/at_business_case.pdf.

What are the solutions?

- **Street network.** A street network with short block lengths (200—400 feet), high street connectivity, and a higher density of intersections per square mile provides multiple routes to and from destinations, creating many route options. People who live in neighborhoods with fine-grained street networks walk more, use transit more, and drive less than people who live in neighborhoods with large blocks and cul-de-sacs.

- **Building massing.** Building massing refers to the ratio of building height to street width (as measured from building front to building front, across the street). Successful public spaces and streets that feel inviting to people walking are often characterized by a ratio between 3:2 and 1:2. If buildings are to exceed heights that would define a ratio greater than 3:2 or 3:1, regulations that reduce or step back the bulk of the upper floors of such buildings can maintain a beneficial level of sunlight and view of the sky, reducing the "urban canyon" effect and making high-density areas more inviting for people walking.

- **Frontage zones.** Especially in commercial and high-density areas, sidewalks should be divided into designated zones: a curb/buffer zone, a furnishing zone, a walking zone, and a frontage zone. The curb zone (roughly 18") provides minimum clearance for vehicle doors to open without obstructing the sidewalk. The furnishing zone provides space for street trees and other landscaping and also keeps streetlights, bicycle parking, and other permanent fixtures from impeding pedestrian flow in the walking zone. The frontage zone functions as an extension of the building and consists of the building façade and the space immediately adjacent to the building. This is the area for sidewalk café seating and retail displays and also works well for placing permanent benches. Wider sidewalks also allow for the placement of transit-stop shelters in the furnishing zone without impeding the walking zone.

- **Site design.** Building fronts define the public space, creating the "wall" that encloses the "room" of the street or plaza. People walking tend to feel more comfortable when they feel a sense of enclosure from the buildings around them, and motorists will naturally slow their speeds due to increased enclosure. One way to successfully define the street space is through the use of build-to lines instead of requirements for minimum setbacks. Minimum setbacks permit buildings to abut the street at a variety of distances as long as they do not infringe on the defined minimum, which creates an uneven street wall and squanders an opportunity to create an inviting sense of enclosure. A build-to line creates a defined wall for the street, allowing variation in construction to the rear of the building lot but creating a more uniform façade.

- **Landscaping and streetscape.** Landscape and streetscape elements are key to creating pleasant walking environments. Street trees protect pedestrians, shade the sidewalk, slow vehicle speeds, provide a sense of enclosure to a street space, absorb stormwater and air pollution, and can increase real estate values. Rain gardens can be incorporated to treat stormwater and reduce flow into storm drains. Ground floor façades that are rich in variation and detail offer the most engaging pedestrian environment, and can make longer walking distances feel shorter. Requiring landscaped buffers between adjoining areas of incompatible land uses can screen unpleasant or noxious views and sounds to benefit commercial or residential zones.

- **Security.** Various elements influence the objective safety and perception of security, including street lighting, building frontages, and the quantity and type of traffic on the street. More people using a space means greater safety, and places designed to increase the feeling of safety will naturally attract more users. Increasing the number of windows and doors, mixing uses, and creating active, varying façades on a block will increase visibility and safety. Street lighting should be oriented to the pedestrian realm.

Excerpt from Denver Commons Design Standards and Guidelines

16th Street (Wewatta Street to Chestnut Street)

Design standards
Proposed public right-of-way: 115'
Light-rail corridor: 25'
Safety median: 6'
Auxiliary lane: North side of street
Sidewalks: 10' minimum walking zone on both sides
Public amenity zone: 5'
Pedestrian sidewalk lighting
Street lighting
Special paving in pedestrian zone: Both sides

Design guidelines:
Street trees spaced 30'
Private amenity zone: 12'
Special amenities: café tables, seating, kiosks, etc.

Design standards noted above have influenced the redevelopment of Denver's Central Platte Valley District into one of the liveliest mixed-use areas in downtown Denver, including a riverfront park (Commons Park), Confluence Park and Plaza, three pedestrian bridges that connect the district to the rest of the city across railroad tracks and the river, commercial retail, and many new apartment, townhome, condo, and senior housing developments. Three light-rail routes now pass through this neighborhood.

Examples

Denver, CO

Denver's Central Platte Valley District provides an early example of form-based code that has resulted in a quality built environment over time. Originally an industrial area and major rail yard, the City and County of Denver developed the Denver Commons Design Standards and Guidelines in 1997 to redevelop the area after it had deteriorated because of the decline in the rail industry.

The plan specifies design standards for streets, blocks, and buildings in great detail, including streetscape and landscape design; vehicle circulation and access; standards for blocks and zone lots to create an orderly grid; pedestrian active-use requirements on ground floors; setback and build-to requirements; criteria for buildings over a certain height to reduce bulk; sunlight access; commercial, residential, and mixed-use building design; and parking garage design. Read more at formbasedcodes.org/content/uploads/2014/02/denver-commons-design-standards.pdf

Santa Ana, CA

The City of Santa Ana Transit Zoning Code (formbasedcodes.org/content/uploads/2014/01/santa-ana-transit-zoning-code.pdf) is a more recent example of a form-based code for an existing mixed-use district adjacent to regional, high-capacity transit. The Transit Zoning Code will help guide intensified development in Santa Ana to support increased transit services. The code divides the 457-acre community into a set of zones based on development intensity and their role in the district, including the Transit Village, Downtown, Urban Center, Corridor, Urban Neighborhood 2, and Urban Neighborhood 1. For example, the Transit Village zone is the most densely developed, with transit-supportive, mixed-use development and pedestrian-oriented uses at street level.

Urban form elements are specified for each zone, such as building types and height, frontage types (arcade, gallery, shopfront, etc.), and building setbacks for all sides of the parcel. The code also specifies driveway standards and parking requirements, including setbacks for off-street parking. For example, the Transit Village zone requires the following:

Santa Ana Transit Village Zone Building Setbacks

Building Setbacks	In feet
Front yard	0′-10′
Side Street	0′-10′
Side yard	0′
Rear yard	15′
Alley rear yard	3′

Santa Ana Transit Village Zone Parking Setback Standards

Setback	Above Grade	Subterranean
Front yard	Min. 40% design lot depth	**0′ min.**
Side Street	10′ min.	**0′ min.**
Side yard	0′ min.	**0′ min.**
Rear yard	10′ min.	**3′ min.**
Alley yard	3′ min.	**3′ min.**

Santa Ana Transit Village Zone Parking Driveway Standards

Type	Min. Width	Max Width
1-way	8′	**12′**
2-way	20′	**25′**
Parking	Not permitted	**Not permitted**

Lacey, WA

Lacey has historically functioned as a bedroom community for the nearby employment centers of Olympia (the state capital) and the Lewis—McChord military base. Recently the city adopted a new "hybrid" form-based code that integrates land-use and urban-form regulations. The hybrid code aims to convert zones of use-based retail and typical automobile-oriented suburban development patterns into streets and blocks that are highly walkable and primed for future transit expansion. It coordinates street design and building design, requires and creates definitions and illustrations of street intersection types, and creates new street connections and urban-scaled infill blocks. The code is sensitive to current land uses and property owners in the designated districts, permitting them to flexibly and incrementally address portions of the new code over time. The code can be viewed at www.codepublishing.com/WA/Lacey/#!/Lacey16/Lacey1624.html. Read more about the development context of the code in the Woodland District Strategic Plan (www.trpc.org/DocumentCenter/View/265).

Pleasant Hill, CA

Years of challenges related to reaching consensus around the redevelopment of large areas of surface parking lots surrounding the BART train station in Pleasant Hill led to the creation of property codes and architectural standards that apply to this small district of the city. The code specifically addresses elements that directly contribute to a friendly walking environment and support the area's existing transit connectivity. The property code includes requirements for building frontage designs and approved materials, lighting plans, using building frontages as street walls to define the streetscape, and landscape standards.

To learn more, read the Pleasant Hill Property Code (www.co.contra-costa.ca.us/depart/cd/charrette/outcome/PHCODE final.PDF) and Architectural Standards (www.co.contra-costa.ca.us/depart/cd/charrette/outcome/PH Arch CODE Final.PDF)

What should I do first?

Steps		Actions
1.	Identify streets and areas or zones most appropriate for infrastructure improvements or code changes to support active transportation and transit use	• Consider streets that are candidates for road diets (converting four travel lanes to two lanes plus center turn lane, plus bicycle and pedestrian facility upgrades) • Limit one-way streets and consider converting some to two-way traffic • Analyze potential for reconstruction as complete streets • Identify problem corridors and hot spots of collisions • Engage with stakeholders in business districts to gather suggestions for walkability improvements • Review current code and identify points that need to be refined or updated • Establish data-collection needs and methods (transit trips, counts of people walking and bicycling, rates of serious-injury crashes, business data such as number of visitors and sales) • Collect baseline data before interventions
2.	Implement infrastructure upgrades or code changes	• Consider implementing the most cost-effective interventions first (for example, restriping streets to encourage slower vehicle traffic and lowering speed limits) • Target the greatest investments in areas of highest impact for business districts and highest density of people walking and taking transit
3.	Track and analyze improvements	• Compare baseline data with change over time • Refine regulations and expand implementation areas if needed

It is important to understand that 'transit-oriented' really means 'pedestrian-oriented.' The benefit of transit is that it allows you to build the walkable, compact neighborhoods where people want to live, work, and play. Walkable design is the key.

Chris Zimmerman, Vice President for Economic Development, Smart Growth America | former Arlington County Board member (1996-2014)

Learn More

Washington, DC: Public Realm Design Manual (including sidewalks, landscaping, and building façades): http://ddot.dc.gov/sites/default/files/dc/sites/ddot/publication/attachments/ddot_public_realm_design_manual_2011.pdf

City of Los Angeles Downtown Design Guide: Sidewalks and setbacks, pp. 10—16; ground floor treatments, pp. 17—19; street wall and building massing, pp. 26—29; street lights, p. 47: http://urbandesignla.com/resources/docs/DowntownDesignGuide/lo/DowntownDesignGuide.pdf

City of Los Angeles Urban Design Studio: Guidelines and Principles: http://urbandesignla.com/resources/index.php

Austin, Texas: Urban Design Guidelines including streetscapes, buildings, plazas, and open space: https://www.austintexas.gov/sites/default/files/files/Boards_and_Commissions/Design_Commission_urban_design_guidelines_for_austin.pdf

City of Melbourne, Australia: Active façade policy (p. 4): http://planningschemes.dpcd.vic.gov.au/schemes/melbourne/ordinance/22_lpp01_melb.pdf

Discussion of city block size from *Streetsblog* NYC: http://www.streetsblog.org/2008/02/22/lets-chop-up-superblocks/

Lighting: a discussion of the costs and benefits of converting traditional streetlights to LED fixtures in Flagstaff, AZ: http://www.flagstaffdarkskies.org/led-lighting-dark-skies/ The Project for Public Spaces discussion of lighting use and design: http://www.pps.org/reference/streetlights/

Lighting: "Best Practices in Placemaking Through Illumination," a Virginia Tech study, provides several case studies of city lighting plans.

Stormwater treatment facilities on streets and sidewalks: The Stormwater Management Manual of Portland, Oregon, includes details for integrating green infrastructure with existing street facilities. See also specific example sheets for infiltration planters and flow-through planters.

"Ground floor vitality" policy and optimized street networks: A plan for the Central City of Portland, Oregon, includes policies to promote "active but compatible ground floor uses" to create vibrant streets (p. 62) and policies that promote a street network emphasizing "efficiency, safety, connectedness" for all users and modes: https://www.portlandoregon.gov/bps/article/581227

One-way to two-way conversions: Cities that are converting some one-way streets to two-ways include South Bend, IN (http://www.southbendtribune.com/news/business/will-two-way-streets-bring-success-to-south-bend/article_e333b7b1-202b-5691-8e7f-3773da0bb07d.html) and Cedar Rapids, IA (http://www.cedar-rapids.org/local_government/departments_g_-_v/public_works/downtown_traffic_changes.php)

- Transportation Research Board study examining the effects of one-way streets on downtown districts: http://onlinepubs.trb.org/onlinepubs/circulars/ec019/Ec019_f2.pdf
- Perth, Australia: infographic regarding the benefits of one-way to two-way conversion: http://www.perth.wa.gov.au/sites/default/files/Two%20Way%20Streets%20Infographic_WEB_0.pdf

The Business Case for Active Transportation: discussion of the economic benefits of walking and bicycling: http://nacto.org/docs/usdg/business_case_for_active_transportation_campbell.pdf

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