






Transit Mall Case Studies

Summary

Location	Key Features	Potential Lessons for Market Street
Successful Transit Malls		
<p>Seattle Third Avenue</p> 	<p>Four lanes, all transit-only. Right lane is used for stops, left lane for passing.</p> <p>Buses grouped into three, each stopping every three blocks.</p> <p>During peak hours, restricted auto access to all lanes, with forced right turns about every 2 blocks.</p> <p>Aggressive enforcement of auto restrictions and cross-traffic backing up across 3rd Avenue at red lights.</p> <p>Buses run 26% faster on surface street than they did in dedicated bus subway.</p>	<p>Through careful coordination of signal timing, aggressive enforcement and optimal stop spacing, San Francisco can significantly improve bus travel times on Market Street.</p> <p>Consider having all buses and streetcars stop every other block.</p> <p>Because of F-Line tracks, consider reversing Seattle's arrangement, with all buses and streetcars stopping at extended boarding islands in the left lane, and using the right lane to allow buses to pass. For wider boarding islands and to bypass cars queued to turn right, consider moving boarding islands midblock.</p>

<p>Vancouver Granville Mall</p> 	<p>Older transit mall, with two transit-only lanes.</p> <p>To revitalize retail along mall, some community members urged opening the mall to vehicle traffic.</p> <p>City decided to maintain current configuration but refresh materials and finishes.</p> <p>One block to be built without curbs as a pedestrian priority space.</p>	<p>For retail and pedestrian success, a high level of investment in materials, finishing, storefronts and programming is critical.</p>
<p>Portland Mall</p> 	<p>Even with Portland's small (200') blocks, the previous transit-only mall was considered to be a failure for pedestrians and retail. Thus the mall is being rebuilt to allow one auto lane.</p> <p>A couplet of one-way, three-lane streets with buses and streetcars. The two right-hand lanes are transit only; left lane available for cars.</p> <p>Curb lane is used for stopping and center lane for passing.</p> <p>Buses and streetcars divided into four groups, each stopping every four blocks.</p> <p>Major rebuilding of couplet underway to refresh all street finishes and attract more retail success.</p>	<p>Consider auto restrictions only at peak hours in order to maintain the "urban energy" associated with sufficient activity in the street, including cars.</p>

<p>Denver 16th Street Mall and Minneapolis Nicollet Mall</p> 	<p>One transit-only lane in each direction.</p> <p>Cars excluded at all times.</p> <p>In Denver, only small, low-floor hybrid buses operate on mall, at very high frequency.</p> <p>Successful retail and pedestrian streets, in part due to high level of programming and high quality finishes and maintenance.</p>	<p>Market Street currently has a low level of finishes and programming compared to these streets, and a very poor level of maintenance.</p> <p>To be successful, Market Street will need improved landscaping, repaired tree grates, full-spectrum lighting at pedestrian level, and more activities programmed along the street.</p>
<p>New York Broadway Boulevard</p> 	<p>Two lanes of traffic converted to cycletrack and pedestrian space, leaving two lanes for mixed traffic.</p> <p>Moveable seating and landscaping attracting heavy use in new plaza spaces.</p>	<p>Like Denver, Minneapolis and Vancouver, programming and seating required to create successful pedestrian spaces.</p>
<p>Unsuccessful Transit Malls</p>		

Chicago State Street, Sacramento K Street, San Diego C Street



Chicago's State Street transit-only mall was reopened to automobile traffic in 1996 and efforts are underway to reopen portions of Sacramento and San Diego's transit-only malls to cars.

Community advocates and business leaders in all three locations cited two key problems:

Lack of storefront visibility by motorists made retailers somewhat less interested in locating there, instead choosing other locations. Over time, this resulted in a downward spiral of retail values.

At off-peak times, particularly at night, the street felt "deserted" and therefore unsafe for pedestrians, who tended to avoid the area and further contributed to retail losses.

Successful streets require an appropriate level of urban energy and intensity. If cars are removed from Market Street, care should be taken to ensure the roadway space is filled with transit and cyclists. Or, car volumes should be reduced to the point where they do not interfere with transit and bicycle traffic, with varying restrictions by time of day.

More importantly, a higher level of care and programming is appropriate to attract more pedestrians.

Detailed Case Studies

Third Avenue (Seattle, Washington)



Nelson\Nygaard image

Seattle's Third Avenue functions as one of the most important transportation spines in the city. Running north-south through downtown and beyond, the street hosts office buildings and retail stores, restaurants and performance halls, and stretches through historic Pioneer Square toward the two major sports stadiums. Third Avenue through the Central Business District (CBD) is two lanes in both directions, with no on-street parking. Commercial Load Zones and Passenger Load Zones are pullouts cut into the sidewalk, so transit operations and traffic flow are not impacted by waiting vehicles.

During peak commuting hours (6-9 a.m. and 3-6:30 p.m.), Third Avenue becomes a transit priority route through the CBD between Stewart Street to the north and Yesler Way to the south. At these times, the street is closed to all through traffic except for buses and bicycles, and business access is restricted. Private vehicles and motorcycles are allowed on Third outside of those hours and on weekends. At all times, left turns are restricted at key intersections, forcing traffic to either continue straight through the corridor or turn right off of Third. There are bus stops at most of the intersections, but bus routes are

scheduled for skip-stops, with routes interweaving to spread vehicles out among stops. The two lanes in each direction allow bus drivers to queue in the right-hand lane when collecting or dropping off passengers, and to bypass other stopped buses through blocks between their assigned stops.

The decision to make Third Avenue a transit priority route – and to redesign bus routes with skip-stops – was prompted by the closure of the Downtown Seattle Transit Tunnel in 2005. Built in the 1980s to move buses rapidly through the CBD, the 1.3 mile tunnel runs under Third Avenue between Pine Street in the north and Pioneer Square to the south. The dedicated, subsurface right-of-way simplifies transit operations, increases travel reliability, and accommodates lower-emissions hybrid buses. It was closed between 2005 and 2007 while construction crews retrofit the tunnel to also accommodate LINK light rail trains, which will begin service alongside tunnel bus routes in 2009.

During tunnel closure, 140 peak hour buses were displaced to surface streets. 60% of transit riders to the Seattle CBD were affected by bus rerouting. Sound Transit, King County Metro Transit, Community Transit, and the City of Seattle worked together as project partners to minimize impacts. These agencies established a Monitor & Maintain Committee to conduct September 2005 baseline measurements and evaluate ongoing travel conditions for transit riders, general purpose traffic, and pedestrians. Contrary to initial concerns from businesses, agencies, and the general public about travel disruptions, construction mitigation measures including Third Avenue transit priority have not only maintained pre-closure travel conditions on surface streets, but in many instances have even improved travel time, congestion, and the walking and cycling environment.

In January 2006, four months after tunnel closure, average bus travel times across the CBD during PM peak hour traffic congestion were 11% longer compared to September 2005. However, travel times improved drastically by March, as road users became used to changing travel patterns, transit schedules, and street restrictions. By July 2007, bus travel times on surface streets were 26% lower compared to pre-closure.

This significant improvement to travel time has occurred even as King County Metro bus ridership through the downtown core continues to grow. Buses entering the CBD gained almost 12,000 riders between Spring 2005 and Fall 2006. Ridership on buses crossing University Street downtown grew from 106,400 in Fall 2005 to over 115,000 in Fall 2008. Amid concerns of overcrowded sidewalks, the Monitor & Maintain Committee measured wait times at surface bus stops before and after tunnel closure. At first, crowding increased. By the second report update in March 2006, improved bus reliability and customer knowledge of route changes brought wait times and queuing back down, even with increased ridership.

Collaboration on supportive infrastructure, communications, and incentive programs have been critical to Third Avenue's success. Prior to tunnel closure, partner agencies undertook construction projects on streets throughout the downtown core to mitigate the impact of vehicles diverted due to Third Avenue restrictions. In order to ensure smooth bus operations, agencies added transit priority improvements and contra flow lanes on nearby Olive Way, Ninth Avenue, and Fifth Avenue. Along Third Avenue itself,

streetscape improvements, additional furniture and lighting, and improved bus shelters enhanced the environment for pedestrians

With respect to general traffic flow, the City improved traffic control signs and introduced dynamic signal priority for emergency vehicles. Crosswalks were restriped and countdown timers added to improve pedestrian visibility and predictability. Agencies prioritized completion of construction projects at north and south entry points to downtown. As part of ongoing traffic control and enforcement activities, police focused on enforcing Third Avenue restrictions, intersection clearing during red lights, and pedestrian and cycling laws. By August 2006, travel times were within one minute of pre-closure conditions for morning and midday traffic throughout the downtown core. Evening rush hour travel times had become slower on some streets, especially Stewart and Fifth Avenues, but even these were within one to two and a half minutes of the September 2005 baselines.

Project partners collaborated on a Contingency Planning/Quick Response team to monitor conditions throughout downtown Seattle during peak commute hours, to evaluate the impact of diverting private vehicles from Third Avenue onto surrounding streets. During the initial adjustment period in September 2005, the greatest increased congestion and delay occurred on Stewart and Virginia Streets. A number of former tunnel routes began operating on these east-west corridors, and the evening peak delays were as high as 10- and 25-minutes. The Response team immediately suggested operational, scheduling, and other mitigation measures. Transit agencies removed selected buses from Stewart, altered schedules, and consolidated stops along these streets. The City of Seattle implemented advance pedestrian crossing signals and additional parking restrictions during peak hours to reduce conflicts. Hotel charter bus and public transit zones on intersecting streets were relocated, closed, or otherwise altered to ease congestion. As a result, by March 2006, travel times improved by five to seven minutes, bus routes were more reliable, and travel through the Stewart corridor became faster than before tunnel closure.

The Downtown Seattle Transit Tunnel reopened in September 2007. Eighteen routes returned to the tunnel, but twenty-two new routes were shifted to Third Avenue by parallel surface streets First, Second, Fourth, and Fifth Avenues. This shift took advantage of Third Avenue's successful transit corridor, and removed transit vehicles from congestion on other streets. Project partners implemented additional mitigation measures in preparation for tunnel reopening. These included installing new electronic displays alerting drivers to peak-hour restrictions on Third Avenue, and creating better wayfinding signs, repainting crosswalks, and installing countdown crossing signals for people on foot.

Today, the Monitor & Maintain Committee notes that with less available excess street capacity, any incidents – traffic collisions, weather, or sports event traffic – cause more severe backups that take longer to clear. Nevertheless, surveys of CBD customers, including bus riders and drivers, conclude that, “While [users] have noticed some changes in how smoothly traffic flows in, through, and out of downtown Seattle...for the most part respondents have remained positive about their overall experiences, demonstrating the resiliency of the population to deal with construction impacts in order to effect transportation improvements.”

The successful efforts of governments, employers, and individuals during and after the tunnel closure showcase diverse tools that help make transit malls like Third Avenue work well even with significantly increased load on the overall street grid. Agency partners planned early, carefully coordinated their resources, and fostered relationships with a wide variety of stakeholders. Perhaps most importantly, this multi-year closure occurred during a time of significant growth and construction in downtown Seattle that included complementary changes throughout the transportation network. All of these measures combine to support improved traffic flow on surface streets and better movement of people across all modes downtown, on Third Avenue and otherwise.

Granville Mall (Vancouver, British Columbia)



City of Vancouver/PWL Landscape Architects image

Around the millennium, as Vancouver made plans for a new subway under its downtown transit mall, the city was presented with an opportunity to reimagine the space as part of the subway's construction. While retail activity hadn't declined like it had along malls in other North American cities – Granville remains, along with Robson, one of downtown Vancouver's busiest commercial streets – some merchants wanted the pedestrianized stretch of the street reopened to traffic. The mall's infrastructure was aging, and its curvilinear transit lanes, modeled on Minneapolis' Nicollet Mall, made buses and bus riders twist and turn.

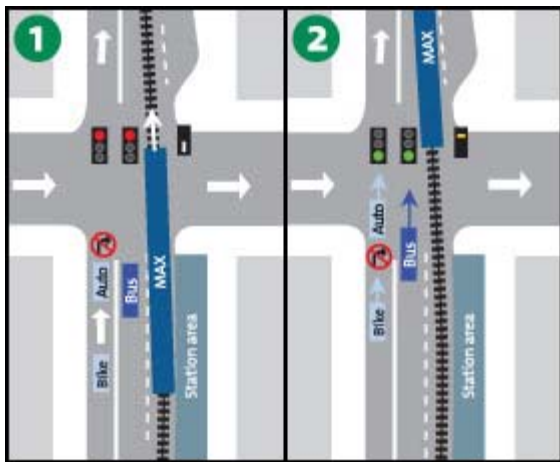
Yet after years of study, officials resolved to retain the basic configuration of the mall. While delivery vehicles and taxicabs could continue to use its bus lanes, private autos would remain prohibited. Inevitably, this was a function of the street's limited right-of-way: just 80 feet, a width significantly less than Market Street's, and too little to allow for generous sidewalks, dedicated transit lanes, and traffic. It was also a function of the street's preeminence for transit riders and pedestrians. Before the mall was closed for construction of the Canada Line in 2006, it was used by more than 1,900 buses per day, carrying 7,500 passengers in the busiest hour every morning, and study found that allowing autos would result in significant delays, costing as much as \$2.5 million (Canadian) annually if turns were allowed while providing little benefit for motorists. Some bus lines could be relocated to parallel streets, but transfers to and from the existing Granville SkyTrain Station and new City Centre Station would be compromised. Pedestrian volumes along the mall, meanwhile, were as of 2002 second only to those on Robson (16,000 over a seven-hour period during the day), and the mall's roughly 25-foot-wide sidewalks were already narrower than those on Market Street.

Planners and policy makers did decide, however, to make a number of changes to the mall's design. Opened in 1974 as a complement to a new indoor shopping center alongside it, the mall had already been significantly altered once, in 1988, when after a six-month trial reopening of the mall to traffic its southernmost block was permanently returned to mixed use. Around the same time, zoning was updated to support the entertainment and nightlife uses that had characterized the street since decades before the mall's creation, as well as to encourage new residential development nearby. When the mall reopens later this year, transit lanes will be straightened on some blocks (some curving curblines will be left in place to preserve mature trees), and one block will be made a "pedestrian priority" space with a level surface, bollards in place of a curb, and no trees. A long, blank wall will be used for signage and night-time projections, and the bus lanes will be closed for special events, turning the entire block into an open, uncluttered, traditionally urban plaza.

Granville Street is both like and unlike Market Street in key ways. The main street and transit and pedestrian spine of downtown Vancouver, it facilitates convenient connections between surface bus routes and underground rail lines. The mall is open to bicyclists but, due to parallel routes, it is not as important to them as Market Street is. Since the Granville Bridge opened in 1954, directing traffic onto the parallel arterials of Seymour and Howe, it has been unimportant for motorists. At 80 feet it is only two-thirds as wide as Market Street, and the mall is only about a half-mile long, roughly equivalent to the distance between Sixth and Third streets in San Francisco. Like Market, however, its character changes significantly along the way. On the mall's northern end is Vancouver's downtown office district; the southern end is part of the city's premier nightlife corridor. Northern blocks are often left in shadow by modern towers, and are used mostly by workers on lunch break, while to the south, adjacent land uses are human-scaled, low-rise, and typically have frontages of just 25 feet, the same as in much of San Francisco (Vancouver has even limited the facades of banks, notorious for their blank walls along sidewalks, to just 25 feet).

Like Market, the street was perceived to be dying in the 1960s; conversion of its downtown blocks to a mall was a radical maneuver. One could easily argue that it has worked: in 1975, the first full year after it opened, tax receipts from businesses along the mall increased 8 percent, and foot and retail traffic have remained relatively high. Yet one could just as easily argue that Granville, like similar malls, has risen (or fallen) not so much on the basis of its design, but as a result of the surrounding land use and economic context. Thanks to an aggressive strategy of residential upzoning, the population of Vancouver's downtown peninsula has more than doubled over the past two decades, and as of the 2006 Canadian census the peninsula had a population density of close to 40,000 people per square mile – many if not most of whom are within walking distance of Granville.

Portland Mall (Portland, Oregon)



TriMet images

Portland's "transit mall" has historically been open to cars, although autos were prohibited on a few blocks. Before the mall was closed for reconstruction two years ago, it also accommodated more than 2,300 buses per day in their own lanes. The mall was redesigned to incorporate two light rail lines, as well as to provide continuous travel lanes in a project that will be completed this fall.

How is Portland able to provide enough capacity for thousands of transit vehicles every day – transit

vehicles that not only are not blocked by traffic, but that generally don't block one another – while still allowing private autos? The answer is simple: the "mall" consists of two streets. Each street (Southwest Fifth Avenue for southbound travel, and Southwest Sixth Avenue northbound) consists of three lanes, meaning that two lanes can be reserved for transit -- allowing transit vehicles to stop in the right lane, and pass in the center lane – while leaving the left lane for all other vehicles. This basic configuration, in place for three decades, won't be changed by the addition of light rail.

In Portland, such a solution is made possible by a tightly gridded network of streets. Downtown Portland blocks are small: just 200 feet square, compared to the 275-by-412 ½-foot dimension of San Francisco's north-of-Market blocks, and the 550-by-825-foot size of South of Market blocks. This short distance reduces the potential for confusion inherent in splitting transit service onto parallel, one-way streets.

The Portland solution isn't ideal for either transit users or motorists. Right turns will be allowed at just three locations along the mile-plus length of the mall (left turns will generally be allowed), and nearly all non-loading curbside spaces will be removed as part of the redesign (although 200-foot blocks mean that on-street parking is available nearby on both cross and parallel streets). The blocks that were previously closed to traffic will also be reopened, allowing motorists to drive the length of the mall. The decision to retain traffic on the mall was popular with merchants, but controversial for many transit

advocates and officials. Rather than the simplest solution -- light rail vehicles in the left lane -- it will require a weaving arrangement in which buses wait while trains departing stops transition from the curbside to the center lane. A panel of transit experts commissioned by the Portland transit agency, TriMet, recommended against the concept, and it remains to be seen how well it will work in practice. However, buses in the center lane already yield to buses pulling out of stops. There are also safety and legibility benefits to consolidating all stops on the same side of the street, and to speed buses and increase capacity, TriMet will be spacing stops on each route four blocks apart, rather than three blocks apart as before.

Other elements of the mall have also proven controversial. While TriMet claims that every dollar invested in the mall's construction has generated \$30 to \$50 worth of public and private redevelopment, the mall is lined mostly by offices rather than shops and restaurants, and it has been perceived as unsafe after dark. TriMet acknowledges on the redesign project's website that deferred maintenance has been a problem. The agency also admits that "the downtown community was asked to 'grit its teeth' and accept the Portland Mall and its extraordinary construction impacts ... the Mall never achieved the kind of stewardship from its adjacent community that has been critical to the downtown success of MAX (light rail) and the Portland Streetcar." It is hoped that a new business improvement district will start to address that problem, as will streetscape elements such as more open and transparent transit shelters designed to discourage vagrancy.

State Street (Chicago, Illinois) , K Street Mall (Sacramento, California) and C Street (San Diego, California)



C Street (image by Flickr user Allan Ferguson; Creative Commons license: <http://creativecommons.org/licenses/by/2.0/>)

According to figures widely reported in the media, where once there were more than 200 pedestrian malls in America, there are now fewer than 30. The same newspaper articles that cite these figures often cite Chicago's State Street Mall as an example of the trend.

That is certainly the case in Sacramento, where officials are currently considering returning cars to downtown's K Street Mall. An article in the Sacramento Business Journal quoted Chicagoans in attributing the decline of businesses on State Street after it was closed to cars in 1979 to exhaust from buses in the mall's transit lanes and removal of the "urban energy" generated by auto traffic. In an article in the San Francisco Chronicle shortly after the street was reopened to cars in 1996, the noted Chicago Tribune architecture critic Blair Kamen made similar comments: buses on the mall were "like a herd of elephants," he said, and "(A) street needs cars to give it scale." Continued Kamen, in defense of narrow sidewalks: "It is axiomatic that crowds attract more crowds, that a little jostling is a good thing."

Others have made less aesthetic arguments for the value of cars on streets. In San Diego, where current plans call for a continuous eastbound travel lane to be added to downtown's C Street, parts of which are restricted to pedestrians and trolleys, advocates have argued that allowing autos on streets increases visibility and access for businesses, improves safety through increased surveillance, and improves circulation for motorists. San Diego planners have cited a 1998 study, conducted for the National Main Street Program, claiming that 90 percent of cities that had reopened malls to cars by that point had experienced increased occupancy rates, retail sales, property values, and private sector reinvestment in their downtowns.

As articles about the decline of pedestrian malls in the U.S. inevitably note, most such projects were conceived in another era, in response to new competition from suburban shopping malls. Middle-class residents and shoppers were departing inner cities, and pedestrianized streets were unable to reverse the trend. This was true in Chicago as elsewhere, although State Street had to contend not just with suburban malls, but with businesses on North Michigan Avenue, where the "Magnificent Mile" was in its ascendancy.

If, however, pedestrian malls had little effect on the decline of downtown retail, can the return of traffic to those streets be credited with their revitalization? Starting in the 1990s, cities both with and without auto-restricted streets began to attract new residents, businesses, public and private investments. In Chicago, former railyards and parking lots adjacent to the Loop became Millennium Park, dozens of condominium towers were erected, and both the Magnificent Mile and State Street are now busy retail corridors. The return of cars to State Street may have been a catalyst for better business; or, it might simply have been part of a larger process.

That notwithstanding, business and political leaders in Chicago have made clear that the return of cars to State Street appeared to have an immediate impact on both perceptions and on the reality of the retail environment. Some will also note, however, that redesign of the street was accompanied by increases in both public (tax-increment financing) and private (a business improvement district) investment. Landscaping was added, sidewalks were power-washed, snow was removed, and potential retail tenants were offered public subsidies, all factors that may have played as much if not more of a role than the return of traffic to State Street.

Nicollet Mall (Minneapolis, Minnesota) and 16th Street Mall (Denver, Colorado)



16th Street Mall (image by Flickr user wirawan0; Creative Commons license: <http://creativecommons.org/licenses/by-sa/2.0/>)

While pedestrian malls have fallen out of favor elsewhere, there appears to be little momentum for major changes to the downtown malls in Minneapolis and Denver. In Minneapolis, a project is underway to reduce the impacts of transit on the pedestrian environment by moving diesel express buses off of the mall and operating a smaller number of quieter, cleaner diesel-electric hybrid vehicles. In Denver, a planning process is underway, but the most talked-about issue appears to be whether to replace the mall's distinctive granite pavers, which are aging and expensive to maintain, with a cheaper and more durable material.

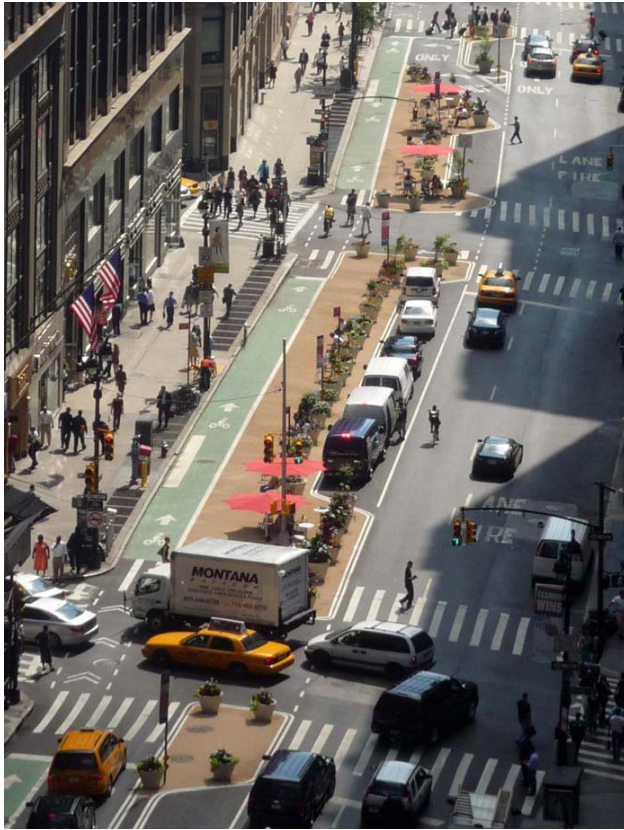
Both malls are unusually large – 16th Street is about a mile-and-a-quarter long, while Nicollet is just short of a mile in length. Neither mall allows private autos, although Nicollet allows taxis. Both malls feature transit lanes, although in Minneapolis, the lanes are used by city bus routes, while in Denver, the lanes are limited to shuttle service provided by a downtown circulator. Both malls also restrict bicycles, although bikes are allowed at certain times (evenings on Nicollet, and Sundays on 16th Street), and Minneapolis officials plan to open the mall to cyclists at all times once bus traffic on the mall is reduced.

Both malls also appear to sustain relatively successful retail environments. Nicollet features boutiques and four major department stores, while two major shopping centers are located along 16th Street and lease rates in the corridor are 50 percent higher than the citywide average. Both cities' downtowns have added thousands of housing units in recent years, as well as major sports and other civic facilities.

The malls differ in their design. Nicollet's transit lanes are gently curving (in 1990, the original "S-shaped" curves, which had the effect of forcing buses and bus riders to sway back and forth, were modified to become "C-shaped" curves), while the 16th Street Mall is asymmetrical on either end, with wider sidewalks on its sunny, northern side, and symmetrical in its central blocks, where the pedestrian zones is divided between sidewalks and a broad median.

The most meaningful difference between the malls, however, may be in their respective approaches to transit. Minneapolis has recently begun a project to relocate diesel-powered express bus service off of Nicollet by adding a second bus lane to both 2nd and Marquette Avenues, parallel streets to the east. This will reduce peak hour bus volumes on the mall by 35 percent, and remaining mall service will be provided by hybrid buses. In Denver, meanwhile, the concern is that there is not enough transit on the mall: MallRide shuttles, custom-built low-floor vehicles that can accommodate up to 116 passengers, are approaching capacity even at peak headways of 75 seconds – the shuttles carry more than 60,000 passengers per day, more on a per-mile basis than many subway lines. There has been talk, then, of replacing the shuttles with streetcars (although this might reduce capacity by resulting in less frequent service) or adding shuttles to parallel streets.

Broadway Boulevard (New York, New York)



*New York City Department of Transportation
image*

In spite of the thousands upon thousands of pedestrians who crowd onto its sidewalks every day and night, most of the right-of-way on Manhattan's "Great White Way" has traditionally been given over to motorists. That began to change in 2008, when the city turned over nearly half of the roadway between 35th and 42nd streets in Midtown to pedestrians and cyclists. The first phase of the "Broadway Boulevard" project consisted of conversion of two lanes of traffic (leaving two through lanes, plus parking and left-turn lanes at key locations) to a broad promenade by coating the pavement with gravel and putting out tables, chairs, umbrellas, and benches, as well as planters to protect pedestrians from traffic. A brightly colored bike lane was also added alongside the curb. No reconstruction of the street was required, so the project required remarkably little time or money to implement, and according to the New York Times, the new seating – which is separated from traffic only by planters and stripes -- quickly became a popular location for lunches and after-hours relaxation on warm summer days and

nights. In the project's second phase, to be implemented later this year, the promenade and protected bike path will be extended in both directions to Columbus Circle and Madison Square Park, covering a distance of nearly two miles, and the entire roadway will be closed to make way for plazas at Times Square and Herald Square. Through traffic on Broadway will be rerouted onto Sixth and Seventh avenues, broad north-south arteries, and simplification of the complicated, six-way intersections that result wherever Broadway, a diagonal street, intersects with both an avenue and an east-west street is expected to improve traffic flow at those locations.