

Denver Multi-Modal Street Type Designation System

Name of Tool: Flexible/revised local design standards

Implementing Agency: City and County of Denver

Scale of Application: State/regional planning, corridor/subarea planning, transportation project development, local comprehensive planning, site planning and development

Description: Since 2002, Denver has been implementing a new street classification system that considers multiple modes and surrounding land uses. Multi-modal streets are "designated" as residential streets, main streets, mixed-use streets, commercial streets, and industrial streets.

Purpose and Need

Streets are broadly classified by design and operational characteristics that relate primarily to the movement of motor vehicles. As a consequence, street design is often less sensitive to the needs of alternative modes - walking, cycling, and transit. The City and County of Denver, believing a better balance was needed between functional classification, adjacent land use, and competing travel needs, decided to "classify" its streets according to their actual function. It also created a street typology system designed to prioritize various roadway design elements by looking at factors related to both adjacent land use and functional classification. Janice Finch, a senior city planner for the Denver Public Works Department, Infrastructure Planning group, explains: "For many years we used the functional classification system, when we classified by size of roadway. Between 2000 and 2002 we started thinking in a new way. All arterials are not alike. Land use and transportation modes are important in their classification."

Denver's street types and functional classifications are designed to bring consistency to the process of planning and improving multi-modal streets, helping ensure that land use and roadway function are given due consideration. "Without this guidance," notes *Blueprint Denver*, the city's land use-transportation plan, "each transportation improvement project could be developed independently without regard to its relation to land use and to other streets in the City."

Description

Blueprint Denver, an integrated land use and transportation plan completed by the City and County of Denver in 2002, defines six functions for roadways. Three of these - **arterial streets**, **collector streets**, and **local streets** - are part of the traditional classification used by federal, state, and local agencies. Two are "special Denver categories": **Landmark Streets** and **One-way Couplets**. Landmark Streets are significant for historical reasons and have influenced the development and unique physical character of the city. One-way Couplets are pairs of one-way streets that function as a single, higher-capacity street. Couplets are usually separated by one city block. Finally, the plan designates a new street classification: **Downtown Access Streets**. These streets serve densely developed mixed-use areas within the downtown area, and are designated as multi-modal facilities.

Augmenting the functional classification system are five street typologies: **Residential Streets**, **Main Streets**, **Mixed-Use Streets**, **Commercial Streets**, and **Industrial Streets**. These typologies allow Denver planners to more precisely characterize streets, using terms such as "mixed-use arterial" or "residential collector." State highways are included in the typology system, but not controlled access highways (freeways). Chapter 4 of *Blueprint Denver* defines each of the typologies as follows:

- **Residential Streets** serve two major purposes in Denver's neighborhoods. As arterials, residential streets balance transportation choices with land access, without sacrificing auto

mobility. As collectors and local streets, residential streets are designed to emphasize walking, bicycling and land access over auto mobility. In both cases, residential streets tend to be more pedestrian-oriented than commercial streets, giving a higher priority to landscaped medians, tree lawns, sidewalks, on-street parking and bicycle lanes. Residential streets generally consist of two to four travel lanes.

- **Main Streets** serve the highest intensity retail and mixed land uses in areas such as Downtown and in regional and neighborhood centers. Main streets are designed to promote walking, bicycling, and transit within an attractive landscaped corridor. Generally, main street commercial activities are concentrated along a two- to eight-block area, but may extend farther depending on the type of adjacent land uses and the area served. Main streets may have two to four travel lanes. On-street parking usually is provided to serve adjacent land uses. Tree lawns and detached walks are emphasized. In especially busy pedestrian districts, the landscaped tree lawn may be replaced with an amenity zone featuring street trees in grates. To further create a pedestrian-friendly atmosphere, main streets may have wide sidewalks, street furniture (benches, information kiosks, trash receptacles, etc.), outdoor cafes, plazas and other public spaces.
- **Mixed-use Streets** emphasize a variety of travel choices such as pedestrian, bicycle and transit use. Mixed-use streets are located in high-intensity mixed use commercial, retail and residential areas with substantial pedestrian activity. These streets are attractive for pedestrians and bicyclists because of landscaped medians and tree lawns. Mixed-use streets can have on-street parking and wide sidewalks depending on the type and intensity of adjacent commercial land uses. On-street parking, bicycle lanes, landscaping and sidewalk width are higher priorities than the number of travel lanes on this type of street.
- The most widespread **Commercial Street** type in Denver is the strip commercial arterial. These arterials typically serve commercial areas that contain many small retail strip centers with buildings set back from front parking lots. Because of this, strip commercial arterials have many intersections and driveways that provide access to adjacent businesses. Historically, this type of street often is highly auto-oriented and tends to discourage walking and bicycling. On-street parking is infrequent. Commercial streets are designed with multiple lanes divided by a landscaped median or a continuous two-way left turn lane in the center. Commercial streets are designed to balance traffic mobility with access to nearby businesses. However, because there are so many intersections and access points on commercial streets, they often become congested.
- **Industrial Streets** serve industrial areas. These streets are designed to accommodate a high volume of large vehicles such as trucks, trailers and other delivery vehicles. Bicycles and pedestrians are infrequent but still need to be accommodated. Industrial streets typically are two to four lanes, which in general are wider than usual to accommodate larger vehicles. On-street parking often is used to store trailers and other large vehicles. Sidewalks are provided but are not as wide as in other higher-density commercial and retail areas. This is the only street type in which attached sidewalks are allowed where tree lawns are not directly adjacent to the street. Attached sidewalks allow larger vehicles and trailers to park on the street without damaging tree canopies in the tree lawn.

The street typologies were adopted in March 2002 as part of *Blueprint Denver*. The two-year effort was led by Denver Community Planning and Development and the Public Works Transportation Planning office, with the help of a 42-member Land Use and Transportation Advisory Committee. The committee represented various neighborhood groups and public agencies, including Historic Denver, Denver Environmental Health, the Denver Planning Board, the Denver Water Board, and the Neighborhood Resource Center. An outside consulting firm was also hired.

Chapter 6 of the Blueprint notes: "[M]ulti-modal street types and functional classifications deal with how a street interfaces with the adjacent land use and how the street is intended to function from a mobility standpoint. Both are important elements to consider when attempting to create seamless connections between several transportation modes. As tools to implement *Blueprint Denver*, each

element gives direction to City staff, elected officials, neighborhoods and others who are undertaking more detailed planning efforts to develop project-level recommendations."

Where sufficient public right-of-way exists, all priority design elements may be accommodated. Within constrained public right-of-way, however, trade-offs between priority design elements are required to balance the functions of the various travel modes.

Application Examples

Blueprint Denver's street typologies are often used as a starting point in the development review process by the Denver zoning, planning, and engineering staff who review private development proposals. A Denver development review committee, named "BlueBridge," is responsible for designing cross sections for street reconstruction projects and land use redevelopment across the city and has begun to rely on the *Blueprint Denver* typologies.

In addition, the multi-modal street concept has been included in zoning amendments, transportation and land use plans, and in design guidelines for local redevelopment projects: the Stapleton Airport Redevelopment Project, the River North Plan, the Downtown Multimodal Access Plan, and the East Colfax Plan.

- *Blueprint Denver* and the *Denver Comprehensive Plan* recommend higher density, pedestrian friendly, mixed use development along Denver's commercial corridors or "Main Streets." Three **Main Street zone districts** were established by the Denver City Council in 2005 to encourage a strong mix of housing, office, and commercial uses in transit rich places and commercial corridors. The Main Street zone districts are implemented using "form-based codes" that provide standards for appropriate building form while allowing flexibility in uses and reducing parking requirements.
- Denver Public Works, with major support from Denver Community Planning and Development, has begun to develop the **Strategic Transportation Plan (STP)**. The objective of the STP is to determine the kinds of transportation investments Denver needs to accomplish the vision of *Blueprint Denver*. The STP represents a new approach to transportation planning. Instead of simply forecasting future auto travel on Denver streets, Denver has developed a transportation model that forecasts expected increases in person-trips, in order to evaluate the magnitude of impacts caused by all types of travel. This person-trip data will give Denver the ability to plan for bicyclists, pedestrians, and transit as well as for street improvements. The STP is the first step in identifying the needs for every major "travel shed" in the city. The STP will include concepts for how to meet transportation needs, including a prioritization of corridor improvements.
- The **Stapleton Redevelopment Project** is the largest infill redevelopment project in the nation, occupying the 4,700-acre (7.5-square mile) site of the former Denver Stapleton International Airport. When build-out is complete early in the next decade, the area will boast 12,000 homes, 10 million square feet of office space, 13 million square feet of retail space, and 3,000 hotel rooms. The Stapleton Redevelopment Project will bring 35,000 jobs and 30,000 residents to the area. Although the original Design Guidelines for Stapleton, published by the City and County of Denver in 1999, pre-date *Blueprint Denver*, they specifically address the need for context-sensitive streets that balance the needs of all users. "In Stapleton," the guidelines note, "no streets should serve auto traffic purposes only; instead almost all should accommodate cars, pedestrians, bikes, and transit with trees, tree lawns, on-street parking, building entries, and underground utilities to create a safe and pleasant experience." The *Blueprint Denver* street typologies add an additional layer of context-sensitive design to an already forward-thinking document. They have led Stapleton project planners to designate one residential collector and one residential arterial and to construct several residential streets with 30-foot-wide cross sections.
- The **Downtown Multimodal Access Plan**, completed in 2005, provides a detailed, integrated plan for vehicular, freight, pedestrian, bicycle, and transit access into and

throughout the downtown area over the next 20 to 25 years. The plan takes into account the relationship between long-term land use planning, infrastructure improvements, and streetscape and urban design elements needed to ensure multi-modal connections. The City and County of Denver, the Regional Transportation District, and the Colorado Department of Transportation (CDOT), as well as the Downtown business community, sponsored the study.

- The **River North Plan** envisions the construction of more than 1,500 residential units, 350,000 square feet of retail development, 650,000 square feet of industrial development, and 1,800,000 square feet of office space in an area northeast of Downtown Denver between Park Avenue West and Interstate 70 and its interchange with Brighton Boulevard. Today, only 79 residential buildings stand in River North, with much of the land used for industrial purposes, notably warehousing and railroads. Nine percent of the land is vacant and a considerable amount is underutilized. One of the purposes of the River North Plan is to restore the historic, mixed use character of the area, taking its transportation and land use cues from *Blueprint Denver*. Implementing the plan, for example, will involve reconstruction of Brighton Boulevard, the main corridor in the area, using the typical roadway section in the plan.
- The **Blueprint Colfax: East Colfax Corridor Plan** focuses on a densely populated, 239-acre area of Denver between Broadway and Colorado and 16th Avenue and 14th Avenue along the historic US-40 highway which serves as the business loop of I-70 through the heart of Denver to Downtown. The study area represents just 0.24 percent of the land area of the city, but houses 3.1 percent of its population and 4.5 percent of its housing units. The East Colfax Plan establishes long-range redevelopment goals and guidelines, defines activity centers at key locations, and emphasizes pedestrian and transit-supportive design standards. These latter include street designs based on *Blueprint Denver*. The plan states: "Colfax Avenue in 2020 will be a multi-modal, commercial and residential 'Main Street' that complements and sustains the nearby neighborhoods and encourages walking, biking and transit use."

Successes and Lessons Learned

Although *Blueprint Denver's* street typologies are works in progress, they are gradually becoming "part of the culture" in land use development, zoning, and the design of transportation improvements in Denver. The greatest challenges occur with infill redevelopment. "Attempting to retrofit existing streets which have high volumes of traffic and constrained right-of-way consistent with the multi-modal street principles necessarily results in tradeoffs between access, mobility, and environmental design," notes Janice Finch, Senior Planner with the Public Works Department.

Staff know that good planning takes time, and cannot achieve results overnight. Making changes to a streetscape is a particularly gradual process and requires the cooperation of planners, engineers, and public works departments. The City of Denver was acutely aware of this when it went about the process of introducing new street typologies to guide multi-modal street design. "It's important for planning and public works departments to work together in formulating the street typologies and continue to work together to formulate street cross sections that are consistent with the typologies," explains Steve Gordon, Development Program Manager at Denver Community Planning and Development. Engaging the various stakeholders early in the planning process helps reduce potential conflicts later.

For Further Information

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Publications:

- [Main Street Zone District](#)
- [Strategic Transportation Plan](#)
- [Downtown Multimodal Access Plan](#)
- [Blueprint Colfax: East Colfax Corridor Plan](#)
- [Blueprint Denver](#)
- [Denver Stapleton Redevelopment Project](#)
- [River North Plan](#)