



## APPLYING COMPLETE STREETS TO SOUTHERN NEVADA

*This section describes a basic framework for understanding, identifying, and applying Complete Streets principles and guidelines within Southern Nevada. Many of these techniques are consistent with guidance provided by national industry publications on Complete Streets or context-sensitive solutions.*

### 4.1 TYPICAL FEATURES OF COMPLETE STREETS

Features of complete streets include improvements to enhance the pedestrian, bicycle and transit environment and make access to these modes more convenient. These improvements range from slowing traffic to creating transit lanes. The following describes typical features of complete streets and how they may benefit Southern Nevada.

#### Traffic Calming

Traffic calming utilizes design strategies to slow down cars and increase drivers' awareness of pedestrians and bicyclists. By slowing down automobile speeds, traffic calming features can have a positive effect on the pedestrian environment, including improved safety for pedestrians, increased pedestrian activity, and more vibrant street life. Traffic calming treatments that contribute to complete streets include:

- Medians;
- Traffic circles;
- Curb extensions;

- Lane narrowing;
- Pavement treatments; and
- Channelized islands.

#### Transit Lanes and Facilities

Transit only lanes, often implemented within Bus Rapid Transit (BRT) projects, increase the priority of transit on the street network and improve transit efficiency and convenience. Enhanced transit facilities, such as bus shelters, stop locations, and lighting are often incorporated into streetscape design elements of streets with BRT. Creating a more efficient and comfortable transit system with these improvements will encourage greater ridership.

#### Bicycle Lanes and Facilities

Bicycle lanes, routes, parking, and other facilities provide infrastructure to better accommodate bicyclists on roadways. Accommodating bicycles through these facilities encourages bicycle use by making it safer and more convenient for bicyclists to use the roadway network. Overarching benefits of encouraging bicycle use include improved environmental and per-

sonal health, reduced traffic congestion, and enhanced quality of life. Specifically, bicycle lanes define roadway space, improve comfort for bicyclists, encourage bicyclists to ride in the correct direction of travel, and signal motorists that bicyclists are allowed to be on the road. Bicycle lanes help to better organize the flow of traffic and reduce the chance that motorists will stray into bicyclists' path of travel. In various surveys bicyclists have stated their preference for marked on-street bicycle lanes. In addition, real-time studies (where bicyclists of varying abilities and backgrounds ride and assess actual routes and street conditions) show that bicyclists are more comfortable and assess a street as having a better level of service for them where there are marked bike lanes present.

Bicycle lanes perform the following functions:

- Support and encourage bicycling as a means of transportation;
- Help define road space;
- Promote a more orderly flow of traffic;
- Encourage bicyclists to ride in the correct direction, with the flow of traffic;
- Give bicyclists a clear place to be so they are not tempted to ride on the sidewalk;
- Remind motorists to look for bicyclists when turning or opening car doors;
- Signal motorists that bicyclists have a right to the road;

- Reduce the chance that motorists will stray into bicyclists' path of travel;
- Make it less likely that motorists passing bicycles will swerve toward opposing traffic;
- Decrease the stress level of bicyclists riding in traffic.

### Midblock Crossings

Midblock crossings are crosswalks located midblock, not at an intersection. They provide locations for pedestrians to cross streets where the spacing of intersections is far apart or when the pedestrian's destination is immediately across the street. In these instances, pedestrians will tend to cross the street even when there is no crosswalk, exposing them to traffic where drivers may not expect them. Midblock crossings respond to this behavior by providing a safe connection. Installing midblock crossings is best only when there is a high amount of pedestrian activity occurring in a specific area.

The design of midblock crossings may include high-visibility crosswalks, signals, warning signs, flashing lights, in ground warning lights, and curb extensions. Midblock crossings should be considered where there is high pedestrian demand to cross, and where street and traffic conditions are adequate. There are three characteristics of well-designed and placed midblock crossings, including:



*Curb extensions are used as a form of traffic calming. They improve the pedestrian environment by reducing street crossing distances, improving the visibility of pedestrians at street corners, and providing an on-street parking area, which creates a buffer between cars and pedestrians. This curb extension also narrows the automobile travel lane. This helps to reduce automobile speeds, leading to a safer crossing environment for pedestrians.*



*Transit facilities are a standard component of complete streets.*



Providing bike lanes can increase safety for those traveling by bicycle.



Midblock crossings provide locations for pedestrians to cross streets where the spacing of intersections is far apart.

- They are highly visible to motorists, bicycles and pedestrians;
- They reduce walking distance for pedestrians; and
- They contribute to pedestrian convenience.

### Landscaping

Landscaping and street trees provide numerous benefits to automobiles, pedestrians and bicyclists. Landscaping not only improves the visual aesthetic of a street, but also makes streets safer and more comfortable for pedestrians. From a motorist's perspective, landscaping and street trees create vertical walls that frame the street with a defined edge that results in more frequent assessment of their speed leading to overall speed reductions. For pedestrians, slower moving traffic relates to a more comfortable walking environment. Furthermore, landscaping and street trees provide a buffer between pedestrians and cars, provide shade, and lead to increased pedestrian activity.

When landscaping is placed either on the median or in the furnishings area of the street, keep in mind unmaintained growth to certain trees and shrubs can lead to decreased visibility and shadows that can distract motorists from seeing the entire roadway. Existing codes are in place to help ensure that landscaping is maintained regularly and these potential issues do not occur regularly on Southern Nevada roadways.

### Road Diets

A road diet refers to a reduction in the number of lanes and/or a reduction in lane width. Reducing lane width and/or the number of lanes can help provide greater width for sidewalks, bicycle lanes, parking lanes, and medians, all of which help to improve the overall environment for bicyclists, pedestrians and transit riders.

Road diets can improve pedestrian safety through lower vehicular speeds and reduced pedestrian crash rates.<sup>1</sup> Furthermore, when center-running left turn lanes are included, traffic flow becomes more efficient with fewer conflicts of automobiles waiting for left turns when located in the left through lane.

Research has been conducted looking at lane reductions from four lane roads to two lane roads with a center running left turn lane. Added congestion can outweigh the benefits if vehicle volumes exceed capacity or if significant traffic is diverted to other thoroughfares. The upper limit threshold to avoid impacts on level of service is approximately 20,000 to 24,000 AADT.<sup>2</sup>

Regarding lane width reductions, the Highway Capacity Manual<sup>3</sup> states that there is no effect

1. *Evaluation of Lane Reduction "Road Diet" Measures and Their Effects on Crashes and Injuries*, Turner Fairbanks Highway Research Center, <http://www.tfbrc.gov/safety/basis/pubs/04082/index.htm>.

2. *Ibid.*

3. *Transportation Research Board. 2010. Highway Capacity Manual, Volume 3: Interrupted Flow, Exhibit 18-13: Lane*

on automobile capacity for lane widths between 10 feet and 12.9 feet. The greatest impact to automobile capacity for urban thoroughfares is at intersections. However, intersection improvements can be made that both improve the pedestrian environment and improve automobile capacity by carefully adjusting the pedestrian crossing signal phase.



*Landscaping not only improves the visual aesthetic of a street, but also makes streets safer and more comfortable for pedestrians.*



*A road diet refers to a reduction in the number of lanes and/or a reduction in lane width in order to achieve improvements to road conditions for pedestrians, bicyclists, or transit riders.*

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*Width Adjustment Factor.*

## Network Connectivity

Example A shows a local example of a suburban style street network, with three entrances to the subdivision. Example B shows additional access points to the surrounding network, which would improve automobile, bicycle and pedestrian access to the surrounding goods and services. In Example C, the additional access points provide access for only bicycles and pedestrians.

- Existing Connection
- Potential Automobile Connection
- Potential Bicycle/Pedestrian Connection

Example A



Example B



Example C



## 4.2 APPLICATION CONSIDERATIONS

Applying Complete Streets design features onto any Southern Nevada roadway will depend on several factors, including its street function and surrounding context.

### Roadway Connectivity to Surrounding Land Uses

Connectivity relates to how an entire area is connected by the street system, not only to the number of intersections along a street segment. A highly connected area includes a system of parallel routes and cross connections, few closed-end streets, and frequent points of access.

By contrast, a conventional cul-de-sac street pattern, typical of subdivision design, usually has large blocks with many dead end streets. This pattern offers few route options since all traffic is funneled out onto a small number of arterial roads, which can cause congestion. In addition, arterial roadways typically are designed to handle only motor vehicle traffic, and are not accommodating to pedestrian and bicycle traffic. A pattern of streets with numerous connections and short blocks makes it easier to move around, especially for bicycles and pedestrians.

There are two important components related to the connectivity of subdivisions: internal circulation and connectedness to the surround-

ing street network. When a subdivision is well-connected both internally and to the surrounding street network, it can provide improved access for pedestrians and bicycles. Dead-end streets and limited access to collectors and arterials usually increases the travel distance to access goods and services, making walking and bicycling less convenient.

### Land Use Context

The land use context of transportation corridors and neighborhood areas may support or deter walking, bicycling, and transit. Recent research has shown that in neighborhoods with a diverse mix of complementary uses, people are more likely to walk, ride bicycles, and use transit.<sup>4</sup> On the other hand, segregated uses such as conventional suburban development can make it inconvenient to use non-automobile modes.

Understanding land use context is critically important to understanding the needs of transportation networks and facilities. The following features of land use context influence transportation needs:

- Land Use and Intensity – in particular, the type and mix of building developments.
- Site Design and Urban Form – how buildings are oriented to the street, setbacks, and type of parking and block lengths.

4. Litman, Todd and Rowan Steele. *Land Use Impacts on Transport: How Land Use Factors Affect Travel Behavior*. 2011. <http://www.vtppi.org/landtravel.pdf> (PDF) (73 pp, 667 K).

- Building Design – in particular, the height, width, scale, and access points of buildings and how they shape the roadway environment.

Another consideration is that the hierarchies of retail establishments have changed. Since 1940, the number of persons per supermarket has drastically increased, while the average store size has grown over 3 times as large. Today's stores offer more products, but they are also farther away than before.

An effective solution requires changes in both the built commercial environment and transportation systems. Distances between residential and commercial areas can be reduced by developing smaller centers that require smaller market areas, and by creating more direct links between residential and commercial areas. This would bring destinations within acceptable walking distance. The appeal of walking can be further improved by focusing on the design and location of streets, as well as the built design of commercial areas to consider pedestrians. This would provide pedestrians, bicyclists and transit users an attractive alternative to using high-speed, high-volume arterials and crossing vast parking lots to reach stores.



*The new apartments on the far left side of this photograph are located near a wide variety of land uses. Within a one-block walk of this building are offices, restaurants, retail establishments, financial services, a church, a police and fire station, and a variety of condos and apartment buildings. With this mix of land uses, walking, biking, and transit become viable options for reaching a variety of destinations.*



*Many single-use housing tracts, such as this suburban neighborhood, are isolated from community facilities and destinations. When those destinations are too far to walk or bike to, the automobile becomes the main form of transportation.*

## Land Use Affects Transportation Needs



Land Use and Intensity: Low-density development with separated uses creates a greater need for automobile travel and provides low accessibility for those who travel by other modes. Higher-density development with a variety of land uses brings destinations closer to those who are traveling, especially to those who travel by bike or on foot. This leads to a greater likelihood that people will choose to travel by modes other than automobiles.



Site Design and Urban Form: The design of each individual property site effects the form of the overall urban fabric. Certain site design treatments can improve building accessibility for pedestrians. These include minimizing building setbacks, orienting building entrances to the street, and placing off-street parking in other locations besides the front of buildings. On a slightly larger scale, creating shorter block lengths also helps improve accessibility for pedestrians.



Building Design: Building design affects the roadway environment. Multi-story buildings provide greater numbers of origins and destinations. Many multi-story buildings close together create districts of activity where the activities are close together and easily accessible by foot or bike. Spacing building entrances close together improves pedestrian access. The overall mass and shape of buildings also influences pedestrian comfort. Excessively large buildings with few entrances and large blank walls create an environment that not comfortable for pedestrians. Narrow, vertically-oriented buildings that are accessible from the sidewalk tend to increase pedestrian comfort.

Figure 4-1 Context Zones

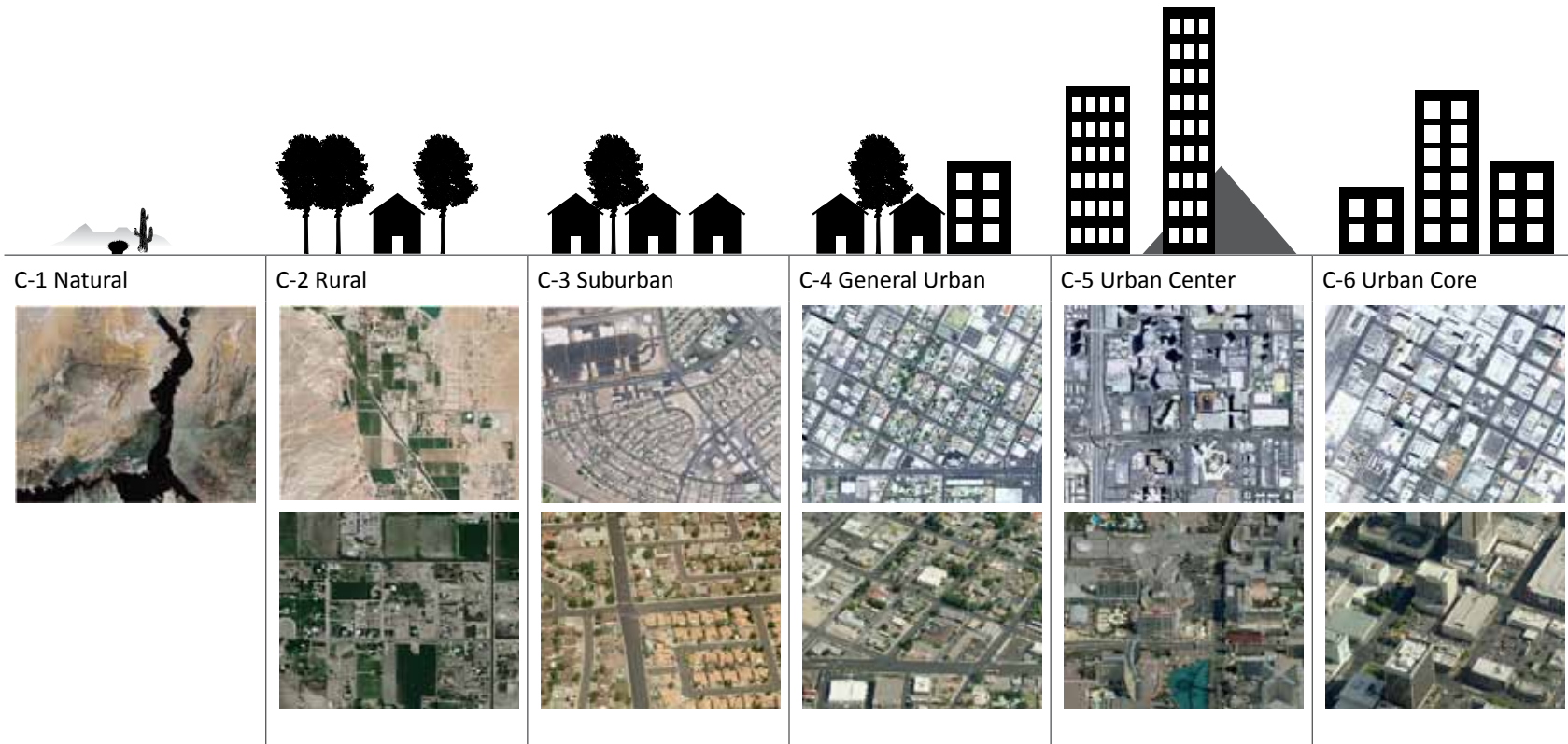




Table 4-1 Context Zones

| Context Zone      | Distinguishing Characteristics  | General Character   | Building Placement   | Typical Height  |
|-------------------|---|---|--|---|
| C-1 Natural       | Natural landscape   | Natural features  | Not applicable   | Not applicable  |
| C-2 Rural         | Agricultural with minimal development   | Agricultural activity and natural features  | Large setbacks   | Not applicable  |
| C-3 Suburban      | Primarily single family residential with curvilinear internal roadway configurations and limited connections to landscape character. Includes separated public and commercial uses that support the residential uses, including schools and shopping centers. | Detached buildings with landscaped yards, normally adjacent to C-4 zone. Non residential uses may consist of neighborhood or community shopping centers, big box retail, service or office uses, and public/institutional uses such as schools. | Varying front and side yard setbacks.  | 1 to 2 story  |
| C-4 General Urban | Mix of housing types, including attached units, with a range of commercial and civic activity at the neighborhood and community scale   | Predominantly detached buildings, balance between landscape and buildings   | Shallow to medium front and side yard setbacks   | 1 to 3 story with some variation and few taller workplace buildings |
| C-5 Urban Center  | Mix of housing types, including attached housing such as townhouses and apartments. Includes workplace and civic activities at the community or sub-regional scale. May include large-scale hotel and tourist attraction areas.                               | Includes attached and detached buildings, landscaping within the public right of way.   | Small or no setbacks, buildings oriented to street with placement and character defining a street wall | 2+ story with some variation  |
| C-6 Urban Core    | Highest intensity areas in sub-region or region, with high-density residential and workplace uses, entertainment, civic, and cultural uses  | Buildings form a sense of enclosure and continuous street wall landscaping within the public right of way   | Small or no setbacks, building oriented to street, placed at front property line                       | 2+ story with a few shorter buildings                               |

Source: Duany, Plater-Zyberk, and Company, *Designing Walkable Urban Thoroughfares: A Context Sensitive Approach*, Institute of Transportation Engineers, 2009.

For Complete Streets suitability and design purposes, land use context zones are used to categorize the physical form and character of an area. The land use context zones highlight the connection between land use and transportation and provide characteristics that can be applied to different transportation corridors and neighborhood areas within Southern Nevada. Figure 4-1 shows the transition between six basic context zones from rural to urban settings using aerial photography examples from places around Southern Nevada. Each zone has a unique set of characteristics which define its character. Table 4-1 shows a summary of the characteristics and includes typical placement and height and the built environment within these zones.

Different zones can either support or discourage modes of transportation and play a large role in defining the suitability for Complete Streets design features. Generally, higher density areas with a mix of uses and well-connected street patterns have more opportunities for Complete Streets design features. However, there are still opportunities to implement Complete Streets design features in lower density areas with limited land use mix and roadway connectivity. The next chapter of this report will discuss the design features recommended for Southern Nevada, how they can be applied on typical roadway patterns seen in the region, and the impacts/trade-offs in implementing them.

### Roadway Function

Typically, civil engineers define various roadways through a classification system, which includes the following categories:

- Local roadways;
- Collector roadways;
- Minor arterial roadways;
- Major arterial roadways; and
- Highways and freeways.

Different street classifications may be more or less suitable for complete streets. Street classifications are used to describe a hierarchy of roadways with attributes related to capacity, design, speed and access. These attributes of a roadway help define the suitability for complete street treatments. Generally, roadways with low or moderate speeds, medium to high volumes, and access for many different types of modes have more opportunities for complete street treatments.

### Flexibility

The design guidelines, discussed in the next chapter of this report, are not meant to be prescriptive. Instead, the guidelines offer guidance on best practices for achieving the goals and objectives of the recommended Complete Streets Policy for Southern Nevada. Ultimately, every roadway corridor is unique. Application of design guidelines should be made based on a



*Generally, roadways with low or moderate speeds, medium to high volumes, and access for many different types of modes have more opportunities for complete street treatments.*



*Not all types of roads will benefit equally from Complete Streets treatments.*



*The control vehicle is often larger than the design vehicle, so transportation engineers and planners must understand the trade-offs and potential implications when the control vehicle uses a roadway designed to a smaller vehicle standard.*



*Although Complete Streets are not focused on design elements to simply reduce speed..., they do focus on measures which create safe conditions for all modes, including non-motorized travel.*

functional understanding of the guidelines and a clear understanding of the mobility and safety trade-offs associated with the selection of one treatment over another. Inputs commonly considered in this process include a design vehicle, roadway design speed, and level of service.

Since vehicular capacity and performance are critical for achieving the mobility needs for many in Southern Nevada, selection of Complete Streets corridors must be done within the context of the regional transportation network. The impacts on adjacent roadways in regard to increases in travel time and reductions of speed and level of service for the personal automobile, which may occur as a result of implementing Complete Streets design features, is a critical element of the process.

### Design Vehicle

There are many shapes, sizes, and types of vehicles which use the roadway and must be accommodated when evaluating design guidelines. The design of a vehicle impacts the design criteria of many aspects of the transportation facility including the lane width and curb return radii. The American Association of State Highway and Transportation Officials (AASHTO) defines 19 different design vehicles within four general classifications which include passenger cars, buses, trucks, and recreational vehicles.

Since it is not practical to design all Complete Streets facilities for the needs of all vehicles, a

*design vehicle* is identified. The identified vehicle represents the largest one that would be most frequently used on a particular roadway (e.g., a bus on a major transit route). A vehicle which infrequently uses a particular roadway but must be accommodated is referred to as a control vehicle. The control vehicle is often larger than the design vehicle, so transportation engineers and planners must understand the trade-offs and potential implications when the control vehicle uses a roadway designed to a smaller vehicle standard.

In areas where Complete Streets design features are most applicable, selecting a control vehicle instead of the design vehicle to develop guidelines will often result in conditions where conditions for non-motorized travel is compromised (e.g., crossing distances or the speed of turning vehicles), which conflict with the greater goals of Complete Streets. Therefore, requirements for both the design vehicle and control vehicle must be considered when allocating lane width and turning radii to these vehicles.

### Roadway Design Speed

Travel time is primarily a function of speed, thus trip planning and route selection are often based on the highest speed roadway facility. *Design speed* is traditionally used to define the appropriate speed assigned to a given facility based on the geometric design elements such as

horizontal curvature, super-elevation, and sight distance. AASHTO suggests assigning as high a design speed as practical to attain a desired degree of safety, mobility, and efficiency within the constraints of the environmental quality, economics, aesthetics, and social or political impacts.

AASHTO’s “A Guide for Achieving Flexibility in Highway Design” (2004) suggests the target speeds in urban areas should “create a safe roadway environment in which the driver is encouraged by the roadway’s features and the surrounding area to operate at lower speeds.” To achieve the goals of the recommended Complete Streets Policy, it is suggested to follow a similar approach to the context sensitive design guidance and design based on a *target speed* rather than a design speed when designing roadway facilities. A target speed is the highest speed vehicles should operate to support a safe and efficient multimodal travel environment including non-motorized modes such as bicycles and pedestrians. Target speeds should be selected using sound judgment which considers the driver’s expectations of the facility, the geometric conditions of the facility, and safety, especially during inclement weather conditions.

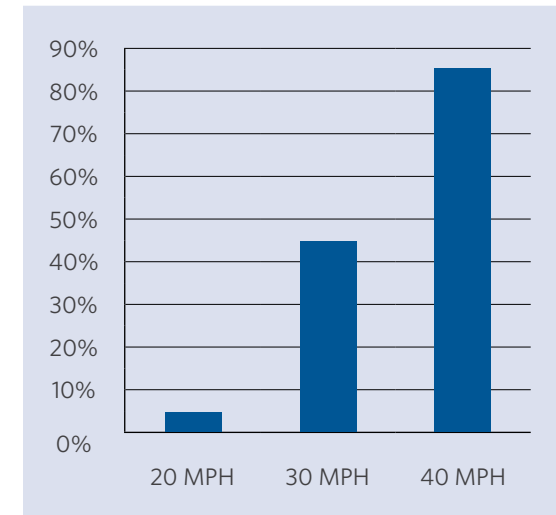
Many of the design elements suggested in these guidelines impact the decision regarding the appropriate target speed of the facility. Although Complete Streets are not focused on design elements to simply reduce speed such as

those suggested though traffic calming treatments, they do focus on measures which create safe conditions for all modes, including non-motorized travel. The measures that do have an impact on speed or the perceived safe travel speed by the user include:

- Signalization-spacing and timing – signal timing can be adjusted to assist in the efficient progression of traffic and keep vehicle speeds moderated at a safe level.
- Travel lane width – narrower lanes create caution in driver behavior. This can be achieved through restriping or physical measures such as curb extensions.
- On-street parking or transit stops – elements that naturally slow travel on the roadway.
- Reducing curb-turn radii at intersections and eliminating high-speed channelized right turn lanes.
- Paving materials, pavement coloring, and/or signage – represents a change in the environment, where drivers are notified of increased pedestrian activity.

Long-term maintenance and operation costs should be considered before implementing some safety countermeasures. Asphalt in Southern Nevada typically contains higher levels of oil when compared to other regions. This may impact the long-term effectiveness of

Figure 4-2 Fatalities based on Speed of Vehicle



Source: Ernst, Michelle and Lilly Shoup. *Dangerous by Design*. 2009. <http://www.transact.org/PDFs/2009-11-09-Dangerous%20by%20Design.pdf>

pavement striping and coloring treatments as trackout can degrade their visibility.

Depending upon the context and the role of the transportation facility, speeds which support safe and efficient multimodal travel typically do not exceed 35 mph. As speed increases, the severity of accidents which involve motorized and non-motorized modes significantly increases (see Figure 4-2).

## Balancing Service for all Users



[www.streetsblog.org](http://www.streetsblog.org)

The City of Boulder, Colorado has made complete street principles an integral part of the City's transportation master plan (TMP). The TMP's goals were centered on a community desire to minimize the impacts of traffic and improve quality of life. The goals called for reducing trips in single-occupancy vehicles to 25 percent and essentially holding steady the number of vehicle-miles traveled. These goals were lofty, and the City realized that other transportation options would be necessary to provide people access to the places they needed to go. Boulder adjusted the TMP to provide for better sidewalks, better pedestrian street crossings, more bicycle facilities, increased carpooling options, and improved transit service. The City has also worked to tie its land use plans to the



transportation plans it has created. Given the goals in the TMP, along with a constrained budget, the City has had to prioritize transportation options for all modes of travel. The TMP has also been created by using a level of service measure that takes all transportation modes into account. Some of the funding that once went to improve capacity for automobiles has been redirected to pedestrian and bike projects. So while automobile level of service may not be holding at the same levels as in the past, the level of service for pedestrians and bicyclists has increased dramatically. The City now provides 300 miles of on-street bike facilities, and trips made by modes other than personal automobiles have been increasing since the initiation of Boulder's TMP goals.

## Level of Service

Level of service (LOS) is a measure of the quality of the traffic operating conditions and is typically a function of travel speed, travel time, volume to capacity ratio, or average vehicle delay. A rating of "A" through "F" is typically assigned where LOS A represents the least congested conditions and LOS F represents the most congested conditions.

The Highway Capacity Manual and most jurisdictions in the RTC planning area have target LOS thresholds which they maintain in order to achieve adequate performance within the traffic network. Design of a facility is based on some future long range projection of traffic and the required roadway capacity to meet the travel needs and for operation at a given LOS.

The Complete Streets guidelines suggest continued use of LOS to quantify vehicular traffic performance but to use this measure as one of many factors in determining the design of a facility. Often times the mobility and safety needs along a Complete Streets corridor call for added vehicle congestion to offset the needs of other travel modes. Local guidelines should be eased to allow the flexibility necessary to allow these designs to occur.

### 4.3 EVALUATION CRITERIA

Not all streets need to include every element typical of Complete Streets. Certain criteria generally dictate which features are appropriate. The following evaluation criteria are suggested when Southern Nevada Jurisdictions determine what roadway facilities are prime candidates for implementing Complete Streets design features. The suggested criterion factors are not only useful for determining what roadway facilities are Complete Streets candidates, but they are important in figuring out the level of implementation for Complete Streets on a given roadway.

Appendix E shows an example of how the evaluation criteria can be applied to Southern Nevada using several inputs. However, this document is not dictating the steps and results shown in Appendix E as completely accurate and implementable for the region. Ultimately, the Southern Nevada Jurisdictions and the RTC, through the Executive Advisory Committee, will reach a consensus in determining where Complete Streets projects take place. Below are suggested evaluation criteria:



*Complete Street design features can help improve safety by creating safe spaces to walk, bicycle, catch the bus, or cross the street.*



*Right-of-way capacity can determine the number of Complete Streets design features that can be implemented onto a roadway.*



*Mobility refers to the movement of people using all modes*



*Land use is a key factor in determining the need for Complete Streets treatments and the number of such treatments that are appropriate.*



Areas with low street connectivity are very difficult to maneuver without an automobile.

### Safety

Complete Street design features can help improve safety by creating safe spaces to walk, bicycle, catch the bus, or cross the street. Complete Streets helps reduce crashes through comprehensive safety improvements for pedestrians, bicycles, transit users, and motorists. Improvements such as sidewalks, medians, and traffic-calming measures can all improve pedestrian safety.<sup>5</sup>

### Mobility

Mobility refers to the movement of people using all modes, including walking, bicycling, transit, and automobiles. Roadways designed for more users may already include Complete Street design features, such as sidewalks, bicycle facilities, and enhanced transit facilities, among others.

### Roadway Design

Roadways with lower speed limits tend to be more accommodating for Complete Streets because bicycles and pedestrians are more comfortable and safer where vehicle speeds are slower. Also, right-of-way capacity can determine the number of Complete Streets design features that can be implemented onto a roadway.

5. B.J. Campbell, et al., *A Review of Pedestrian Safety Research in the United States and Abroad*, Federal Highway Administration, 2004.

### Block Pattern and Connectivity

A well-connected network of streets and pathways is an important part of enhanced mobility for multiple modes. An interconnected grid helps disperse traffic and allows for smaller, more human-scaled streets. Recent development patterns in the Las Vegas Valley resemble curvilinear patterns with walled subdivisions, limited connectivity, and few intersections. There are older developments in the Las Vegas Valley, however, that include well-connected block patterns.

### Land Use Context

Please see the discussion in Section 4.2 of this document.



A well-connected network of streets and pathways is an important part of enhanced mobility for multiple modes. Downtown Las Vegas exhibits a well-connected street network.

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