Regional Connector Transit Corridor
Draft Environmental Impact Statement/
Draft Environmental Impact Report

APPENDIX J

STATION PLANNING TOOLKIT

State Clearinghouse Number: 2009031043

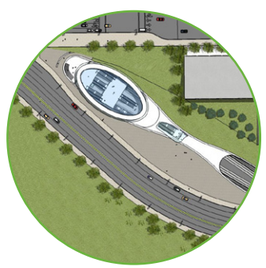
Metro

REGIONAL CONNECTOR TRANSIT CORRIDOR PROJECT

STATION PLANNING TOOLKIT

CDM IBI GROUP

SEPTEMBER 11, 2009
METRO REGIONAL CONNECTOR TRANSIT CORRIDOR STUDY, PHASE 2



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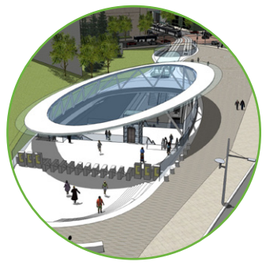


INTRODUCTION

1.0

◀ Precedent – de la Concorde Transit Station, Laval QB

1.0 INTRODUCTION

1.1 TOOLKIT PURPOSE

This toolkit provides streetscape and station design guidelines for the proposed Regional Connector Transit Corridor Project. It emphasizes the station sites and structures and pays particular attention to design decisions affecting how the system fits within the existing downtown.

This document builds upon the Metro Regional Connector Urban Design Report and is based on an analysis and distillation of best practices gleaned from guidelines developed for other transit systems, in conjunction with recommendations arising from the team's evaluation of the specific context and requirements of this project.

These guidelines do not contain rigid requirements or numerous specific dimensions. Rather, they outline key elements and design objectives for transit-system design in relation to its setting. The elements of this 'Toolkit' are intended to be applied to the design of the Regional Connector Transit Corridor Project and to support the decisions that Metro makes in concurrence with existing City of Los Angeles plans and policies.

Consistent with these plans, the introduction of the Regional Connector is seen as an opportunity to improve the downtown pedestrian environment. By integrating its stations within the urban fabric, future development will be encouraged in a pattern that promotes walking, transit use, environmental stewardship and a sense of community.

1.2 GOALS & OBJECTIVES

▶REINTEGRATE DOWNTOWN INTO THE LARGER CITY CONTEXT

A downtown core that is accessible from anywhere in the city and active around the clock becomes a natural destination location for residents and tourists.

▶PROMOTE MULTI-MODAL TRANSPORTATION

Transit systems designed to be fast, affordable and visually appealing, provide the public with a welcome alternative to commuting by car.

▶PEDESTRIANIZE THE DOWNTOWN

Urban streets lined by mixed-use development, vibrant streetscapes and public spaces create safe and enjoyable pedestrian travel to daily amenities.

▶GREEN THE DOWNTOWN

Greenery adds interest, ornamentation and continuity between urban spaces, while performing a valuable role in the reduction of noise and air pollution.

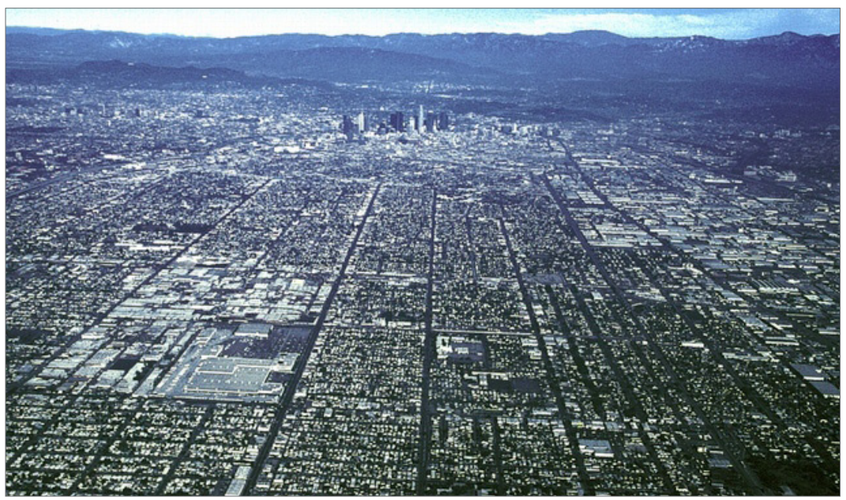
▶ESTABLISH A SENSE OF PLACE

The concept of placemaking acknowledges and builds upon a neighborhood's unique character through its architectural mix and street-side atmosphere.

By integrating its stations within the urban fabric, future development will be encouraged in a pattern that promotes walking, transit use, environmental stewardship and a sense of community.

◀ (Left / Right) Historic Broadway, Los Angeles

◀ Los Angeles Freeways



◀ Aerial of Los Angeles Today

1.3 LOCAL CONTEXT

1.3.1 HISTORY

Los Angeles' history of growth cannot be separated from its history of transportation. The two grew together, intertwining with and encouraging the growth of the other. The city's setting – a vast basin bordered by the Pacific Ocean, the mountains and the desert – permitted unbridled outward growth. This sprawl eventually led to an over-reliance on the automobile.

The city's use of rail, both heavy and light, has fluctuated over time. Rail travel enjoyed popularity in the 1900s, when the first five railways and the addition of the local electric railways (red cars) provided a number of commuter-rail options. However, in the mid-1920s the automobile made its debut and began to replace trains as the preferred mode of transportation. Freeway networks were built parallel to the first five tracks. Except for a brief period during World War II, the use of rail steadily declined. By 1959, only the Los Angeles to Long Beach Trolley remained but, two years later, it too ceased operations.

In the mid-1980s, after many failed attempts at introducing mass rail transit, the Los Angeles County Transportation Commission and Southern California Rapid Transit District began to reassemble the rail right-of-ways abandoned years earlier. Today, a radial network of rail transit lines once more serves the city. The Metro Rail system consists of over 73 miles of track.

The Regional Connector will increase commuter options, allowing transit passengers to access the Metro Blue Line, the Metro Gold line and the Metro Expo Line without a transfer from one system to the next. The Regional Connector will facilitate the integration of LRT, bus and passenger-rail service in the region, increasing the effectiveness of the entire mass transit system.

The Regional Connectors timing is right. The car culture that once typified North American cities – and particularly Los Angeles – is becoming a thing of the past. Increased awareness of the need to reduce greenhouse gases has prompted citizens to voluntarily carpool, cycle, walk and take public transit instead of driving. The simultaneous move towards controlling urban sprawl has sparked a renewed interest in the quality of urban life.

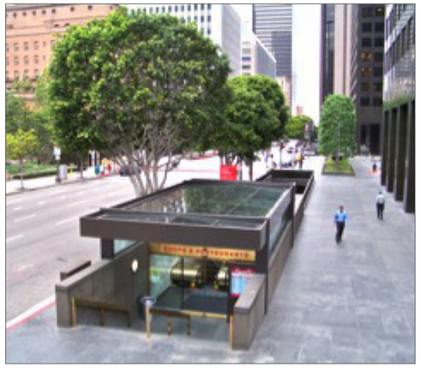
Downtown Los Angeles underwent its own recent overhaul with the introduction of major civic drawing points like the Staples Center, the Walt Disney Concert Hall and the Cathedral of Our Lady of the Angels. Plans underway, including the Grand Avenue project, will make the downtown even more of a destination. Already, this increased activity in the city center has made it a much more attractive place in which to live, work and play.

Another influence comes from Latin American urban design, which leans heavily towards lively urban plazas and pedestrian promenades. This influence in Los Angeles is further driving the move away from car culture and towards pedestrian culture.

1.3.2 CLIMATE

Los Angeles has a dry-summer subtropical climate characterized by 263 sunshine days per year on average and only 35 days of precipitation. The period of May through October is warm to hot and dry with average high temperatures of 74 – 84°F. The winter season includes minimal frost and lower temperatures that range from 73 – 48°F. The key to enjoying the outdoors in the city is the ability to escape from excessive heat and the occasional rain shower. Waiting areas and public spaces must offer escape from exposure to the sun.

Downtown Los Angeles happens to be one of the most favored climates in North America for the growing of subtropical plants. From a landscape architecture perspective, there is opportunity to provide protection from the elements with plant screens, walls and canopies.



◀ (Left) Financial District – Existing Metro Center; and (Right) 5th & 6th at Flower Station At-Grade

◀ Financial District – Existing Plaza

◀ Financial District – Existing Streetscape

1.4 DOWNTOWN DISTRICTS

The urban grid of streets and blocks throughout most of Downtown LA are based on a 'superblock' scale of generally 300' × 600'. The grid layout is inclined diagonally at a 26° angle off the cardinal grid of the rest of the city, following the original Spanish grid of El Pueblo de la Reina de Los Angeles.

The alignment has been subdivided into three major 'districts' within the downtown – the Financial District, Bunker Hill District and Historic Core / Little Tokyo District. These character zones will provide a 'jumping-off point' for developing themes and treatments for the streetscape. Please refer to Fig. 1 on page 7 and Fig. 2 on page 8, which illustrate all of the identified districts in downtown Los Angeles.

1.4.1 FINANCIAL DISTRICT

The Financial District extends throughout the lower and upper west Bunker Hill areas on the north and generally to Seventh Street METRO Center area on the south. The District is adjacent to the Harbor / Pasadena I-110 Freeway on the west and extends generally to Grand Avenue and beyond (see Fig. 1 and 2 for context).

The area encompasses more than 19 million sq. ft. in existing development, primarily high-rise office towers, hotels, the Los Angeles Central Library and Maguire Gardens Landscaped Art Park & Plaza, the Westin-Bonaventure Hotel / Conference Center and numerous existing high-rise office buildings surrounding the Fifth and Flower Street intersection, as well as the adjacent upper Bunker Hill concentration of office towers.

The segment of Flower Street, between Third and Fourth Streets, is flanked by the (±) 50' tall World Trade Center podium on the west and the (±) 60' tall Bank of America podium building on the east. Both podium buildings enclose parking garages and are internally oriented to vertical circulation cores with no significant street level pedestrian access, entrances or exits, along the length of the frontages of this segment of Flower Street.

Significant employment centers include the Bank of America Headquarters tower, the 444 Flower Street tower, the Westin-Bonaventure Hotel, the World Trade Center, the Marriott Hotel, the Figueroa Courtyard low-rise office complex and other job centers. Significant residential development includes the existing 990 dwelling units within the Bunker Hill Towers complex north of Third Street, and the 606 dwelling unit Promenade Towers residential complex, located at the NWC of Second Street and Figueroa, for a nearby residential total of 1,596 dwelling units.

1.4.2 BUNKER HILL DISTRICT

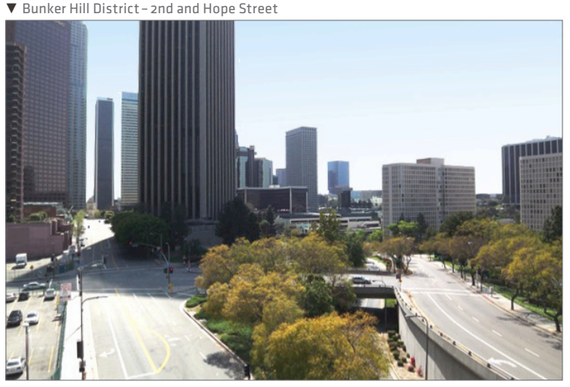
Significant cultural attractions in the immediate vicinity include Disney Hall, the Music Center with the Chandler Pavilion, Mark Taper Forum, Ahmanson Theater complex, the Cathedral of Our Lady of the Angels and the new Civic Park.

Major job centers include the LA Department of Water and Power Headquarters at the northwest corner of Hope and First Streets, the Los Angeles County Hall of Justice Courthouse, the County Administration Offices flanking the new Civic Park, the Colburn School of Performing Arts, MOCA, and Phases I & II of The Grand Avenue mixed-use office, residential, hotel and retail / entertainment development complex directly across Grand Avenue. Other nearby Bunker Hill employment destinations include the Bank of America Headquarters tower, the California Plaza towers, and the Wells Fargo Bank towers on upper Grand Avenue, all within a 5 to 6 minute walking range (see Fig. 1 and 2 for context).

With up to 2,660 dwelling units proposed for The Grand Avenue Project at build-out, the local residential neighborhood will include the existing 990 dwelling units Bunker Hill Towers residential complex, 391 dwelling units Grand Tower apartments, and the 217 dwelling units Museum

▼ Bunker Hill District – Disney Music Hall

▼ Bunker Hill District – 2nd and Hope Street



◀ Historic Core / Little Tokyo District – Existing Pedestrian Bridge

◀ (Left) Historic Core / Little Tokyo District – Existing Public Art; and (Right) Los Angeles City Hall.

Tower apartments near Second and Olive Streets, for a proposed total of 4,258 dwelling units, all within a 3 to 6 minute walking range of the proposed station.

1.4.3 HISTORIC CORE / LITTLE TOKYO DISTRICT

Within a 5 to 6 minute walking range to the north, the quarter mile radii along the second street transit corridor encompass approximately 80% of the Civic Center Federal, State, County and City Government employment centers and the related public destinations along the north side of First Street between Hill Street and Alameda Street.

This includes the site for a proposed new Federal Courts and U.S. Government office tower between Hill and Broadway, the L.A. Times / Mirror Square office buildings between Broadway and Spring, the new LAPD Headquarters building between Spring and Main Streets, the Caltrans Headquarters building between Main and Los Angeles Streets, the Kyoto Grand Hotel & Gardens complex, the Weller Court Shopping Plaza at the corner of Second and San Pedro Streets, approximately 80% of the Amended Little Tokyo Redevelopment Project Area (RPA) and the Little Tokyo / Arts District.

Also within a 5 to 6 minute walking range lie the proposed site of the 50-story, mixed-use Zen Residential Tower at the northeast corner of Hill and Third Streets, and the north portion of the Historic Core District, which includes numerous historic resources such as the Million Dollar Theater building, Grand Central Market, Angels Flight, the Bradbury Building and Biddy Mason Park, and proposed new buildings such as the Medallion Project, a 200 dwelling units mixed-use development at the southeast corner of Third and Main Streets.

Vibiana's Garden is located at the southeast corner of Main and Second and plans include the proposed Vibiana Place mixed-use development on the south side of the Vibiana property. The Vibiana site area also includes a proposed Little Tokyo Recreation Center on Los Angeles Street between Second and Third Streets. The Little Tokyo Branch Library is located at the southwest corner of Second and Los Angeles Streets, and represents the west gateway into the Little Tokyo Community RPA.

The quarter-mile radius around the proposed Little Tokyo Station includes the City Hall and Civic Center. Other predominant uses within Little Tokyo Station area are retail shopping, hotel and hospitality uses, international banking, financial and commercial offices, historic resources, temples, churches, cultural and institutional services, and most recently, a rapidly increasing number of medium to high-density residential and mixed-use infill development projects (see Fig. 1 / 2 for context).

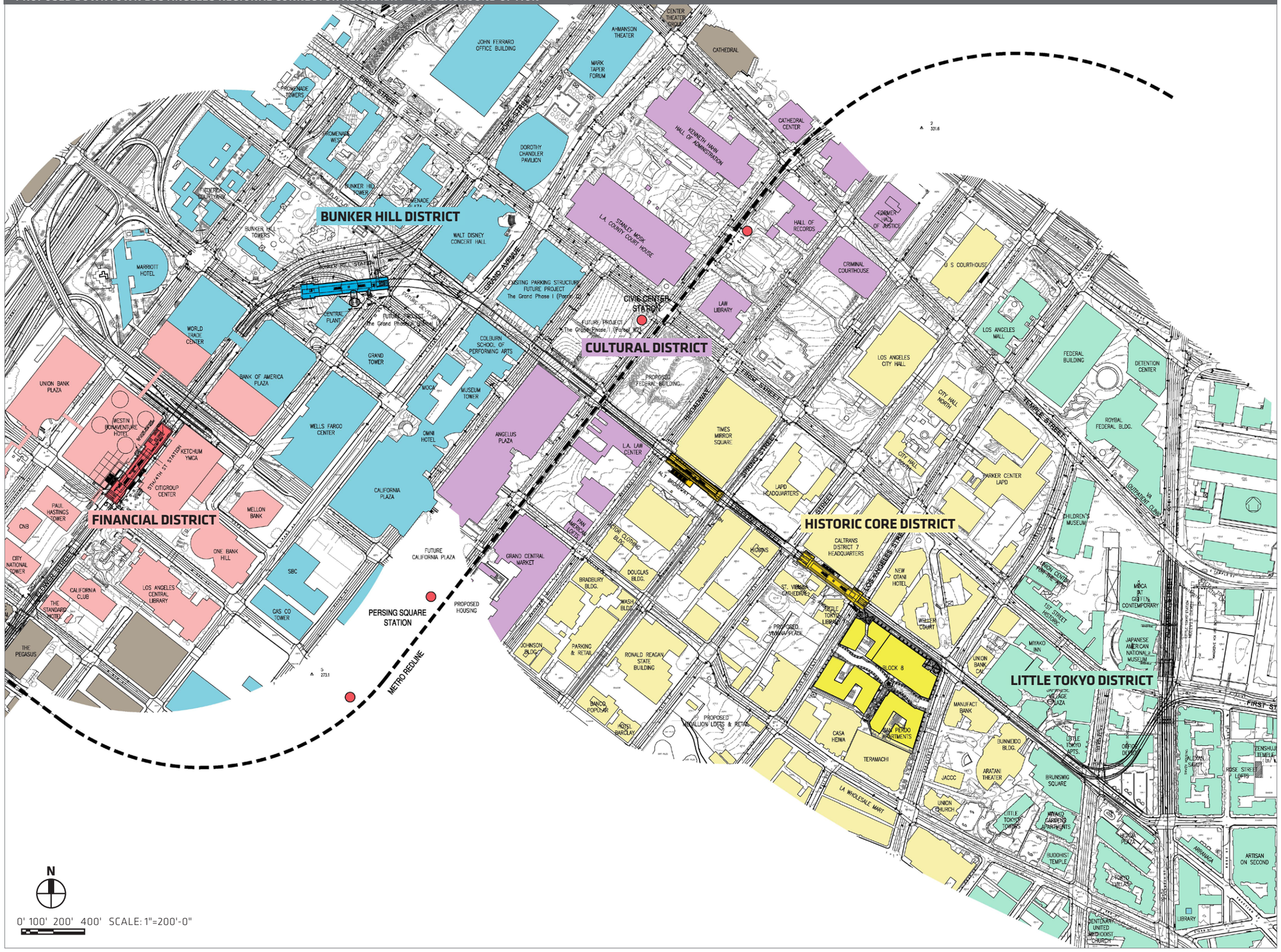
The existing land use pattern within the original Little Tokyo RPA is largely a reflection of development that has occurred since 1970. Plans are in place to revitalize and preserve a mixed-use, full service community that continues to serve as the cultural, religious, social and commercial center of the Japanese American Community in Southern California.

In addition, the Little Tokyo Block 8 Mixed-Use Development (MXD) Project is presently in construction to include 750 dwelling units, with 50,000 sq. ft. of ground floor commercial space, 40,000 sq. ft. of landscaped open space and pedestrian paseos and parking for more than 1,000 cars, plus an additional 600 public parking spaces to serve the local area.

▼ Historic Core / Little Tokyo District – Panorama

FIG. 1

PROPOSED DOWNTOWN LOS ANGELES REGIONAL CONNECTOR ALIGNMENT – UNDERGROUND OPTION



◀ This map illustrates the identified 'districts' in downtown Los Angeles, providing a 'jumping-off point' for developing themes and treatments for the streetscape.

FIG. 2

PROPOSED DOWNTOWN LOS ANGELES REGIONAL CONNECTOR ALIGNMENT – AT-GRADE OPTION

◀ This map illustrates the identified 'districts' in downtown Los Angeles, providing a 'jumping-off point' for developing themes and treatments for the streetscape.

DESIGN GUIDELINES

4.0

◀ Application of CPTED principles along retail high streets and TOD centers.

"A city is not buildings alone.
It is the spaces between that matter most."

–Prof. Jan Gehl, Life Between Buildings

2.0 DESIGN GUIDELINES

2.1 URBAN DESIGN

2.1.1 URBAN DESIGN PRINCIPLES

Great cities of the world are known not for their architecture alone but for the quality of their urban spaces – places where people willingly congregate to see and be seen. Urban design might, therefore, be defined as the art of forming connections between people and places, or between movement and urban form, within the Public Realm.

The underlying principles of good urban design focus on providing for the safety, convenience and comfort of the pedestrian in an environment that is lively and engaging, aesthetically pleasing, reflective of the local context, infused with meaning and historical relevance, economically viable and environmentally sustainable.

The Urban Design section of this Station Planning Toolkit sets forth a series of design principles and guidelines aimed at ensuring that the public spaces associated with stations deliver on their responsibility to contribute positively to the public realm. They are based upon best practices and / or industry standards from other similar projects, applied with careful consideration for the local context. At issue is the opportunity to use the advent of the Regional Connector as a catalyst to deliver quality urban spaces that contribute positively to a vibrant downtown.

Section 2.0 Design Guidelines deals both with Urban Design – a look at the broader context of the elements of urban placemaking and station design – with an understanding that their common ground is that the transit plaza surrounding each station entry can serve prominently as the center of neighborhood focus.

The underlying principles of good urban design focus on providing for the safety, convenience and comfort of the pedestrian in an environment that is lively and engaging, aesthetically pleasing, reflective of the local context, infused with meaning and historical relevance, economically viable and environmentally sustainable.

2.1.1.1 WALKABILITY & PEDESTRIAN ACCESS TO PUBLIC TRANSIT

To make an interconnected network of streets and sidewalks work, careful consideration of the interface between the automobile and the pedestrian is needed. Above all, pedestrians must be given priority and ensured safety to encourage the level of pedestrian use that supports transit. In this revamped model of priority, the following hierarchy should be respected in all planning activities:

- (1) Pedestrians;
- (2) Cyclists;
- (3) Transit; and
- (4) Automobiles.

2.1.1.2 COMMUNITY PARTICIPATION

Through consultation with residents and stakeholders, station area planning should accommodate a wide range of supporting benefits for local communities. Physical improvements to the public realm are insufficient on their own to create a truly lively, healthy urban environment. In addition, it is critical that the community be actively engaged by providing opportunities for public events and celebrations. The City of Los Angeles is exemplary in providing such opportunities, as evidence by the list of events contained in the Appendix.

To make an interconnected network of streets and sidewalks work, careful consideration of the interface between the automobile and the pedestrian is needed.

◀ Conventional Street

◀ Traffic Calmed Street

◀ Pedestrian-Oriented Intersection

2.1.1.3 SAFETY

Designing for safety is particularly important in transit areas where citizens are occasionally required to wait for extended periods, particularly in evening hours. The solution is to design the environment to optimize natural surveillance. The greater the pedestrian activity on the street, the safer the street is likely to be.

2.1.2 URBAN DESIGN COMPONENTS

2.1.2.1 BLOCKS

A grid-based street network is the fundamental building block of the urban environment and allows for a diversity of different street types and flexible lot patterns. At the heart of the grid is the block.

▶GUIDELINES

- Human scale blocks with shorter lengths are ideal to accommodate pedestrian travel.
- Provide a continuous network of pedestrian sidewalks and pathways throughout the station area connecting to surrounding neighborhoods and open spaces. This network comprises a variety of routes, enabling multiple user experiences and shorter travel distances.

2.1.2.2 STREETS & INTERSECTIONS

Streets are multi-functional spaces, designed for the safe, convenient and efficient mobility of all users – pedestrians, bicyclists, transit riders and motorists – in balance. Intersections must be safe and friendly to pedestrians and cyclists, but also allow for steady automobile travel.

The pedestrian, bicycle and vehicle realms should be clearly defined and separated to make negotiating intersections as safe and simple as possible.

▶PEDESTRIAN FEATURE GUIDELINES

- Reduce curb radii to the minimum possible to encourage lower turning speeds and to decrease the crossing distance for pedestrians.
- Extend high quality sidewalk finishes through the intersection, providing a strong cue to drivers that the crosswalk is part of the pedestrian realm.
- Locate pedestrian crossings at intersections, as close to natural 'desire' lines as possible to minimize jaywalking.
- Encourage mid-block crossings with curb extensions on blocks of more than 600' long.
- Maintain clear view corridors along streets connecting to the transit station and major civic landmarks.
- Allow signalization to favor transportation modes in the following order of priority: pedestrians, cyclists, automobiles.
- Orient street furniture, lighting, signage and landscaping towards the pedestrian.
- Avoid barriers as a means of controlling pedestrian flow as they create the feeling that the street belongs to cars first and pedestrians second. They reduce visibility for children and those in wheelchairs and give drivers a false sense of security.
- Street level pedestrian activities enhance the public realm and are the urban design priority for creating great streetscapes. In cases where pedestrian access requires grade separation with pedestrian bridges or underpass features, these facilities should be carefully designed to enhance pedestrian activity and safety and include pedestrian amenities such as joint uses, cafés and other retail amenities.

FIG. 3

TECHNICAL CONSIDERATIONS

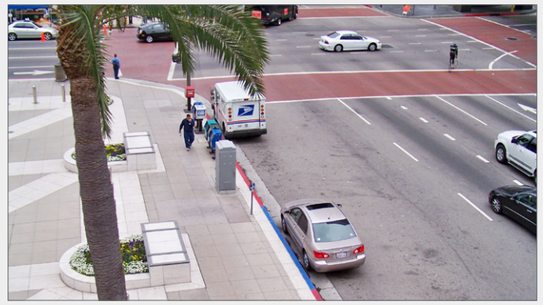
▶TRAFFIC CALMING MEASURES

HORIZONTAL DEFLECTION

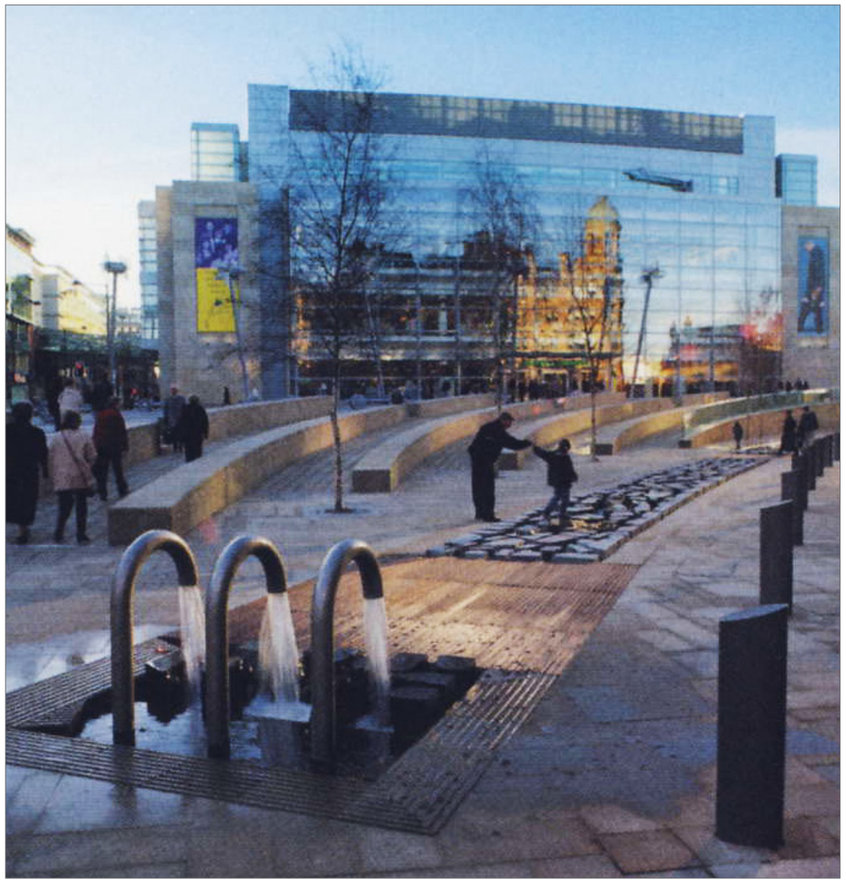
- Narrow Lanes (Less Than 12' in Width)
- Chicanes
- Mid-Block Extensions
- Traffic Circles
- Designated Bicycle Lanes

VISUAL CUES

- On-Street Parking
- Signage
- Regularly Spaced Trees
- Light Standards
- Banner Poles
- Medians



◀ Open spaces provide urban relaxation areas and places to interact.



◀ Architecture of adjacent building is oriented to the public plaza.

▶VEHICULAR FEATURE GUIDELINES

- Restrict traffic speeds to 30 miles per hour or less.
- Use on-street parking as a means to calm traffic. It provides a barrier between moving vehicles and the sidewalk and reduces the need for structured and at-grade private parking.
- Encourage further traffic calming through horizontal deflection methods and visual cues (see Fig.3 for details).
- Where possible, limit streets to a maximum of four lanes in width. Where the street is four lanes or greater, provide a center median with a pedestrian refuge.
- Create clear sight lines between driver and pedestrian. While it may seem counter-intuitive, reducing barriers and separations between cars and pedestrians, to a certain degree, actually forces drivers to be more cautious.

▶BICYCLE FEATURE GUIDELINES

- Connect local cycling routes to regional networks whenever possible. Bicycle lanes should be a minimum width of 5' and located along the outside edges of the street. Where designated bicycle lanes are not possible or desired, the vehicle lane closest to the curb should contain an additional 3' of width for cyclists.
- Locate bicycle stop lines slightly ahead of automobile stop lines at intersections to allow motorists to more easily acknowledge cyclists.

2.1.2.3 OPEN SPACES

A diversity of public places, including open spaces and civic uses, encourages social interaction and community participation.

▶GUIDELINES

- Place public parks, pocket parks and green spaces at intervals to situate downtown residents within a five-minute walking distance from inviting, usable open space.
- Comprise streetscapes of a variety of design elements – streets, sidewalks, building frontages, front yards. They create a pleasurable pedestrian experience and form the physical infrastructure of placemaking.

2.1.2.4 ARCHITECTURE

Architectural design of stations and related structures should be of high quality, carefully calibrated to respond to the local character of individual station areas and downtown neighborhoods. Individual architectural solutions are encouraged within the context of local character and compatible building massing.

Each station area should be developed as a unique environment, transforming a utilitarian transit node into a community gateway and a vibrant mixed-use hub of activity.

▶GUIDELINES

- Encourage properly conceived, strategically placed mixed-use development to combine disparate uses such as 'big box food stores and high-rise urban residential units' into single developments.
- Integrate transit stations with adjacent development where feasible.
- Where stations are in close proximity to, or integrated with, existing historic buildings, care should be taken to respect building character.

◀ Precedent – Underground Transit Station, Munich, Germany.

◀ Precedent – At-Grade Transit Station, Amsterdam, Holland.

◀ Station plaza's offer efficient pedestrian circulation and contribute to community life.

2.2 STATION DESIGN

2.2.1 STATION DESIGN PRINCIPLES

The principles described herein are to be applied in addition to Metro's existing design standards.

▶STATION IDENTITY

A station character that works in harmony with the local context will set the tone for future development. This character can be extracted by overall design, furnishings, signage and public art.

▶AMENITIES FOR PASSENGERS & NON-PASSENGERS ALIKE

Station areas should act as a community focal point for the station area, providing a meeting place whether or not the users arrived by public transit.

▶PATRON ORIENTATION

A system's smooth functioning relies on the ability of patrons to easily navigate a station both at regular times and in the case of an emergency. Unobstructed station access and thoughtful signage is crucial.

▶EFFICIENCY

Standardizing station components like electrical and mechanical systems and selecting materials designed to have a long life span promotes cost savings and environmental efficiency.

2.2.2 STATION DESIGN COMPONENTS

2.2.2.1 STATION PLAZAS

Transit stations should be designed not only for their primary function of travel to and from a community, but also as a center for community life. Station plazas are key components of the transit system, aiding in the development of a positive identity and providing a strong sense of place. They are key to providing good circulation and passenger flow in and out of the stations. Station plazas also facilitate wayfinding and orientation for users new to the system.

▶GUIDELINES

- Allow the station area to feature a generous, well-designed transit plaza to accommodate not only passengers, but also activities for the general public.
- Place transit stops near high-activity areas like high retail streets and public places.
- Encourage ancillary services, such as retail kiosks, in transit waiting areas to generate pedestrian activity.
- Facilitate the provision of public amenities and services, such as retail locations, information kiosks, seating areas, meeting places and event venues.

2.2.2.2 COMPLEMENTARY USES

Complementary uses are activities other than the transit facilities or their direct support facilities that provide additional services to patrons. They add security, amenity and identity to the station. These services can provide a profitable location for businesses and additional revenue for the transit system. They may include private facilities (convenience stores, day-cares, pharmacies, news stands, eateries) or public facilities (meeting halls, community centers, neighborhood parks).

▶GUIDELINES

- Conform complementary uses to all applicable and appropriate codes, local ordinances, regulations, standards and recommendations.
- Ensure that complementary uses are appropriate for the specific station location and provide needed services for the surrounding community.
- Design the façades of complementary uses to enhance the character of the site, to be compatible with the station architecture and to not interfere with the rail station's identity.
- Do not permit complementary uses to impinge on any station or site functions.

◀ Elevators increase accessibility to underground stations.

◀ Ramps are encouraged at all minor grade changes.

2.2.2.3 PROVISIONS FOR DISABLED USERS

People with disabilities, those 65 years old and older, the temporarily disabled and patrons with transitory conditions – the parent with a stroller, the expectant mother, the shopper carrying parcels, the traveller with baggage – must be carefully considered in station design. The specific issues that must be considered in facility design are orientation, horizontal travel, vertical travel, use of fare collection equipment, transfer from the platform to the transit vehicle and egress under emergency conditions (see Fig. 4). In most instances, provisions for the mobility disadvantaged fall within normal practice or existing code requirements. The majority of requirements can be incorporated through design at little or no additional cost.

▶GUIDELINES

- Ensure elevators comply with all applicable codes and standards.
- Clearly identify mobility-disadvantaged accessible entrances and other system elements, such as parking spaces, rest rooms and vehicle doors.
- Make all primary entrances to transit facilities accessible to the mobility-disadvantaged.
- Design circulation spaces that permit the unassisted movement of the mobility-disadvantaged through the facility, yet still integrate with general patron flow.
- Position and mount all equipment to which the public has access in such a way that wheelchair occupants can use the controls without assistance.
- Identify essential public facilities within transit facilities in a method appropriate for the blind and partially sighted.
- Ensure elevators, where employed, are accessible to the mobility-disadvantaged on the level that they use to enter the building, and at all levels normally used by the general public.
- Avoid potential hazards, due to abrupt changes in floor level, ground and floor surfaces and gratings.
- Identify platform edges by using a band of pavement at least 2' wide with a clearly contrasting texture and color. Tactile warning strips should be used to identify this potential dangerous area for the blind.

2.2.2.4 SECURITY & VANDALISM

Security and safety concerns the ability to protect the public from site hazards, prevent dangerous situations and guard against destruction of property.

▶GUIDELINES

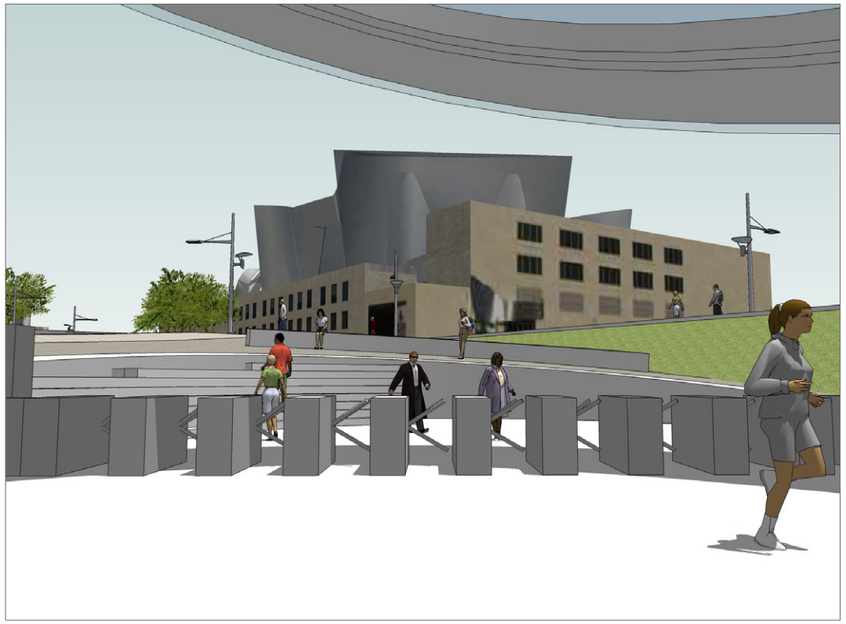
- Assign proper lighting to all areas of the site open to the public.
- Avoid designs with obstructions or 'hiding spots'.
- Identify and equip high security areas with appropriate security measures (fences, cameras, security personnel, etc.)
- Select design materials with reduced susceptibility to vandalism as well as those easy to clean, replace or repair.

FIG. 4

TECHNICAL CONSIDERATIONS

▶AREAS OF CONSIDERATION FOR THE DISABLED

- Parking
- Entrances
- Signage
- Grade Changes
- Protrusions
- Warning Systems, Both Audio and Visual
- Vertical Circulation
- Surfaces
- Guardrails
- Hardware
- Restrooms
- Control Buttons – Height
- Drinking Fountains
- Landscape / Pedestrian Zone Relationships



◀ Passenger circulation is easily understood and unobstructed.

◀ Adequate space surrounding vending and ticketing areas is necessary for efficient circulation.

2.2.2.5 HORIZONTAL STATION CIRCULATION

Passenger traffic is composed of two distinct groups: regular patrons and infrequent users. Once passenger flows have been established and the majority of patrons become familiar with the process, many directional problems will be eliminated. The initial goals should be to provide easily understood patron orientation, unobstructed access to and from station platforms and sufficient space to accommodate projected growth.

▶GUIDELINES

- Ensure pedestrian circulation is safe, easily understood and non-conflicting.
- Create station circulation systems that provide safe passage to and from the station platform and, in the case of a subterranean station, the mezzanine.
- Clearly label station entries.
- Encourage right-hand circulation patterns and the separation of passenger flows moving in opposite directions.
- Avoid cross-flow circulation and dead-end conditions.
- Ensure compliance with the National Fire Protection Association (NFPA) Standard 130 at exits.
- Provide a minimum of 7' – 6' clear at all platform edges.
- Include adequate space surrounding vending / ticketing areas as not to obstruct circulation.
- Provide a minimum queuing distance at high-traffic areas (see Fig. 5 for details).

FIG. 5

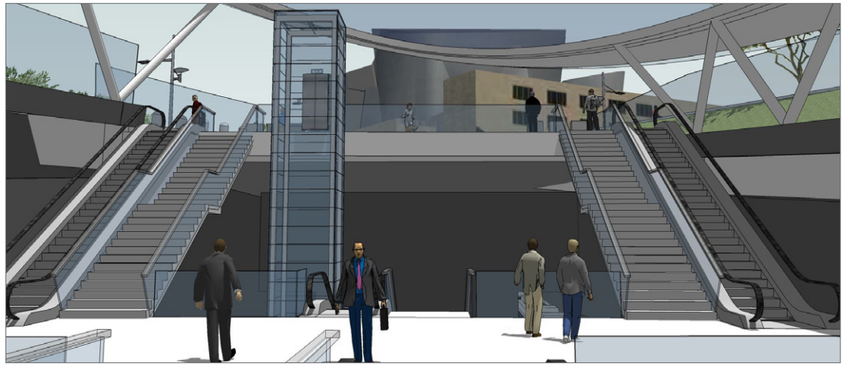
TECHNICAL CONSIDERATIONS

▶QUEUING DISTANCES

Provide the following minimum queuing distance at the following areas:

- Ticketing / Fare Vending = 8' – 0'
- Escalator = 20' – 0'
- Elevator = 12' – 0'
- Stair = 15' – 0'

◀ Safe and efficient vertical station circulation.



◀ Weather protected outdoor escalators.

2.2.2.6 VERTICAL STATION CIRCULATION

Vertical access to station platforms will typically be by stairs and ramps and, in the case of underground stations, by escalators and elevators as well. The priorities in designing a station's vertical components should be safety, convenience, accessibility for the disabled, security and ease of maintenance.

▶STAIR GUIDELINES

- Construct stairs of non-combustible materials.
- Use non-slip surfaces on treads, risers and landings.
- Include a trough to one or both sides of stairs to facilitate cleaning.
- Provide a ramp where a change in elevation is less than 18".
- Keep stair width to a minimum of 6' to accommodate:
  - » Opposite (up-down) flow of pedestrian traffic and a passing lane;
  - » Convenience for persons carrying packages and / or children; and
  - » Different anthropometric sizes.
- Conform stair elements to the guidelines outlined in Fig. 6.

▶RAMP GUIDELINES

- Construct ramps of non-combustible materials with a non-slip surface.
- Keep the ramp slope within the parameters of 1' in 20' (5%), with a maximum slope of 1' in 12' (8%).
- Ensure that the distance between landings does not exceed 30'. Requirement for railings, handrails and headroom are as noted for stairs in Fig. 6.
- Ensure a width minimum of 6' – 0" and a landing length of 5' – 0".

▶ELEVATOR GUIDELINES

- Employ only fully automatic, hydraulically operated models.
- Size interiors to accommodate wheelchairs, stretchers for emergencies and maintenance equipment.
- Ensure a rated minimum capacity of 3,500 lbs.
- Ensure controls that accommodate wheelchair-bound as well as sight and hearing impaired patrons.
- Locate elevators near parking for people with disabilities in stations with parking facilities.

▶ESCALATOR GUIDELINES

- Weather-protect any escalators that may be used outdoors.
- Provide escalators that are two speeds and reversible. They must be equipped with an emergency stop connected to the fire alarm system to enable an emergency exit route when stopped.
- Adhere to the following escalator dimensions:
  - » Width = nominal 48" minimum measured between balustrades and 27" above nosing of step treads.
  - » Slope = 30°
  - » Headroom = same as stairs (refer to Fig. 6 for details).

FIG. 6

TECHNICAL CONSIDERATIONS

▶STAIR FEATURES

TREADS & RISERS: GENERAL

- When parallel to adjoining escalator, tread to riser relationship should be a component of 30°.
- Ratio of riser to treads: 2R + T = 24 to 25 (where R = Riser, T = Tread).
- Tread and riser dimensions should be uniform in any one stair.

RISERS

- Maximum = 7".
- Recommended = 6 – ½".
- Limit number of risers in a single run to 18 at public stairs.

TREADS

- Minimum size = 11".
- Treads exposed to weather should have a 1% slope downward toward nosing.

▶LANDINGS

- Straight run stair minimum length = 4'.
- Return stair minimum length = width of stairs.
- Avoid concealed reverse landings.
- Ramp landing length = 5".

▶HANDRAILS

- Diameter = 1-¼" minimum to 2" maximum.
- Distance from wall = 1-½".
- Height from top of tread at nosing to top of handrail:
  - » Adult = 30" minimum to 34" maximum; and
  - » Child = 24".
- Continuous from top to bottom of stairs including landings. Locate on both sides of stairs. Extend 12" beyond the top riser and 22" beyond the bottom riser.
- Intermediate handrail required when width of stairway is over 88".
- Return ends to wall or turn down 90°.
- Grip surface to be uninterrupted by handrail supports.
- Handrails may extend a maximum of 3½" into width of stairs.

▶GUARDRAILS

If guardrails are not solid, any opening should be sized to allow a maximum of a 4" sphere to pass through.

▶HEADROOM

- Measured from perpendicular to the tread nosing.
- Public stairs = minimum of 7'-6".
- Service stairs = minimum of 9'-0".
- 9'-0" for maintenance (to avoid finger prints).
- Continuous soffits = 10'-0".

▶TACTILE WARNINGS

Locate before top and bottom risers. Start at a minimum of 24" from the stair nosing.

◀ Canopies shelter passengers from the sun and rain.

◀ Transparent enclosures increase visibility and security.

◀ Solar paneled canopies protect from the sun while harnessing its energy to power the platform.

2.2.2.7 WEATHER PROTECTION

Protecting the patron from exposure to extreme summer heat and winter rain and wind is a major factor in the architectural design of the station as well as in maintenance and security issues. Each station type has its own particular weather protective situations. The at-grade stations are more exposed and may need more extensive provisions for the patrons as well as for mechanical equipment. Underground stations will require protection at patron entries and for vertical circulation equipment such as elevators and escalators.

▶GUIDELINES

- Incorporate canopies into the station design as effective shelter from the sun and rain. They should slope to a drain or gutter and, as an additional sustainability feature, can be made to empty into a bioswale or water feature. Canopy design should fit with the surrounding architecture.
- Design enclosures to be transparent or semitransparent for visibility and security. The bottoms of enclosure partitions should be open for drainage and to prevent the collection of wind-blown debris.
- Situate station amenities on the leeward side of buildings for protection against wind.
- Use existing vegetation on site, such as trees, as buffers against adverse weather. Architectural and landscaping elements can also be used to reduce glare from low horizontal sun angles.
- Protect against building up-draft and the Venturi effect on wind caused by large buildings.
- Ensure that protective devices do not obscure visibility, inhibit security or interfere with patron circulation.

◀ Selected materials should be safe, durable and attractive.

2.2.2.8 MATERIALS & FINISHES

This section discusses design criteria for the selection of materials and finishes for the public areas within the system. Consideration is placed on comfort and attractiveness as well as safety, durability and cost. Refer to Fig. 7 for detailed guidelines on materials selection.

▶GUIDELINES

- Minimize hazards from fire and smoke by using materials with low burning rates and non-toxic characteristics. Materials must comply with all code requirements.
- Ensure proper attachment and bond strengths to reduce hazards from dislodgement due to temperature change, vibration, impact, wind, aging, etc.
- Provide non-slip material at entrance stairways, platform edges and other areas exposed to weather elements.
- Use materials that will provide long and economical service with wear, strength and weathering qualities that resist the effect of abrasion, impact, temperature changes and sunlight. Use only materials whose appearance and color can be maintained throughout their useful life.
- Select materials that are stain resistant, that hide minor soiling and on which casual vandalism can be easily erased with normal maintenance procedures. Materials should be easily cleaned in a single operation with standard cleaning equipment and cleaning agents. Repair and replacement should be considered in the selection of materials.

TECHNICAL CONSIDERATIONS — FIG. 7

▶MATERIALS SELECTION

Stations should be designed to create a feeling of warmth, attractiveness and quality, and to instill in transit patrons a civic pride that will encourage good housekeeping and good behavior.

SURFACE

Materials should be hard, dense, non-porous, non-staining, acid and alkali-resistant for long life and low maintenance. Surfaces within reach of the public, up to 8' above the floor, should be more resistant to damage than is necessary for surfaces above that point.

COLOR

Colors should be predominantly light in tone to aid in maintaining high illumination levels, but with sufficient contrasts and accents to provide visual interest and warmth, as well as to conceal minor soiling.

TEXTURE

Smooth surfaces are preferred over rough ones for ease in cleaning and because they are less prone to catch settling dust. Rough surfaces are desirable where a non-slip feature is important and in areas that are difficult to reach for cleaning, because even though these surfaces may accumulate dust, they will not appear dusty.

UNIT SIZE

Units should be large enough to reduce the number of joints, yet small enough to facilitate replacement if damaged. Monolithic materials may be used if they have inherent soil-hiding characteristics and can be easily repaired in an unnoticeable fashion.

JOINTS

Small, flush joints should be provided. Since joints are a major source of maintenance problems, they should be limited in number and should be of the best possible materials. Horizontal joints should not be raked, but be flush or tooled concave. To prevent cracking, monolithic materials should have adequate control joints and expansion joints at proper spacing. The use of easily damaged joint covers or soft joint filler materials should be avoided.

COST

Costs should be within budget of the station and should be consistent with long life, frequency and expense of maintenance, convenience, replacement considerations and overall aesthetic and functional qualities.

AVAILABILITY

Materials should be provided in sufficient quantity that their delivery and / or installation, whether for one or several stations with concurrent completion schedules, will not involve cost penalties or delays for either materials or labor.

NON-PROPRIETARY MATERIALS

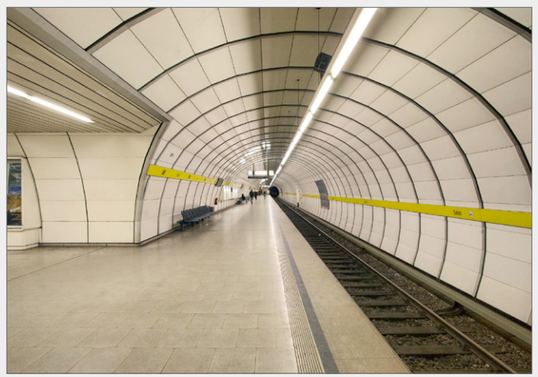
To obtain competitive bids, proprietary items should be used only where it is established that no other materials exist which will meet the particular design requirements. All other items should be specified on a 'performance specification' basis.

INSTALLATION STANDARDS

Materials should be detailed and specified to be installed in accordance with industry standards and the manufacturer's printed directions for long life, low-maintenance installations.

FLAMMABILITY

Interior finishes should meet the requirements of the Uniform Building Code (UBC), Chapter 42, as well as NFPA 130 and all other applicable codes. The finishes for all exit ways should be Class I as defined by the UBC, and Class A as defined by NFPA 130. Platforms, concourses, corridors, stairways and vestibules should be considered exit ways. Finishes in all other areas should be Class II as defined by the UBC, and Class B as defined by NFPA. Combustible adhesives and sealants may be used when they meet the requirements stated above.



◀ Turnstile areas should be large enough to accommodate peak hour volumes.

◀ Secured ancillary facilities must be provided accordingly.

2.2.2.9 FARE COLLECTION & CONTROL

One of first things encountered upon entering a station is the fare collection and control area. These areas may serve single or multiple entrances and are often at or near the confluence of multiple paths of travel. To prevent congestion and confusion, access must be simple, direct and easily navigated, and the space allocated must be sufficiently generous to easily accommodate peak travel volumes – when congestion and passenger confusion are even more likely. Conflicting movements between arriving and departing passengers must be avoided.

The layout of this area is critical, as it presents the potential to create a serious bottleneck in passenger flow through the station. Passengers, especially new or infrequent riders, must orient themselves, read and understand system signage and schedule information, choose their direction of travel, determine the fare required and access passes or money. Riders who hesitate due to confusion tend to stop moving and can create a traffic jam even before they arrive at turnstiles, making it all the more important to provide plenty of space and to arrange information and services with the novice traveler in mind.

▶GUIDELINES

- Queuing distances and space provided for the fare collection area should be based on projected future peak volumes, as opposed to average daily volumes, as smooth passenger flow is most critical at these peak travel times.
- Information displays (schedules, system maps, etc.) should be located as near the station entry as possible and well before the fare gates. At larger stations, duplicates of this information should also be located near the fare gates, but out of the path of travel to allow infrequent or new riders to confirm directions and double check information without blocking other passengers.
- The customer service kiosk should be prominently located with generous queuing space provided on both the 'free' and 'fare paid' sides.
- Lighting, HVAC and structural elements should be located so as not to block travelers' view of information displays.
- Information displays, lighting, HVAC and structural elements should be located well out of reach of passengers.

2.2.2.10 EMPLOYEE & ANCILLARY FACILITIES

Ancillary facilities are the non-public areas that support and sustain transit operations. These facilities are much more likely to be required for underground stations and space should be provided accordingly. Ancillary facilities may include:

- Traction power facilities;
- Station power and electrical rooms;
- Heating, ventilating and air-conditioning (HVAC) rooms;
- Mechanical rooms;
- Storage facilities;
- Maintenance and Janitorial rooms;
- Communications rooms; and
- Transit personnel offices, lounges and restrooms.

▶GUIDELINES

- The design of ancillary and support facilities is contingent upon the functional requirements of the individual spaces and their locations. However, their design must be subordinate to the public transit-related functions of the station.
- Ancillary and support facilities should be provided with secure and restricted access to and from the station's public spaces.
- In general, access points to these facilities should be consolidated to minimize security equipment, simplify access control, and minimize potential disruption of the public space.
- Ancillary facilities should also be located away from platforms, perhaps on mezzanine levels, and near appropriate vertical transportation systems, suitable for staff access and equipment removal and installation.

◀ Secured bike storage facilities will encourage people to use active modes of transportation.

◀ Platforms must provide safe and clear circulation routes between trains and exits.

2.2.2.11 BICYCLE FACILITIES

The use of bicycles to access transit stations should be encouraged, and connections to bike paths and routes should be carefully considered as part of the station planning process. As an incentive to bike riders, easily accessible, well designed and secure facilities should be provided on-site. Also consider providing other services, such as storage facilities for personal belongings, as well as maintenance and repair services.

▶GUIDELINES

- Storage facilities should be covered and situated on a hard, well-drained surface near the station entry, with proper illumination and clear signage.
- Allow sufficient space for expansion of bike storage facilities.
- Avoid conflicts with pedestrians, auto and bus services.
- Provide lockable storage options, including secure stanchions and bicycle lockers.
- Consider security issues and local regulations regarding visual transparency / opacity of storage lockers, etc.
- Provide security monitoring of bicycle storage areas.

2.2.2.12 PLATFORMS

The station platform is one of the most important elements of the station and must be carefully designed. It should provide safe, easily navigated, unobstructed access to and from train loading areas.

Platforms are sized to accommodate specific car lengths, future expansion and the anticipated passenger load levels, site availability and the placement of circulation elements. The platform must accommodate multiple passenger circulation functions including travel along its length, boarding, disembarking, queuing to board, queuing to access elevators, escalators and stairs and waiting for trains.

Due to the presence of large, potentially fast-moving trains, the platform can be a dangerous place and safety is a prime consideration. Passenger safety can be enhanced through the clarity of the physical layout and the size of the platform, as well as through the use of durable, non-slip surfaces, tactile banding at platform edges and other safety features.

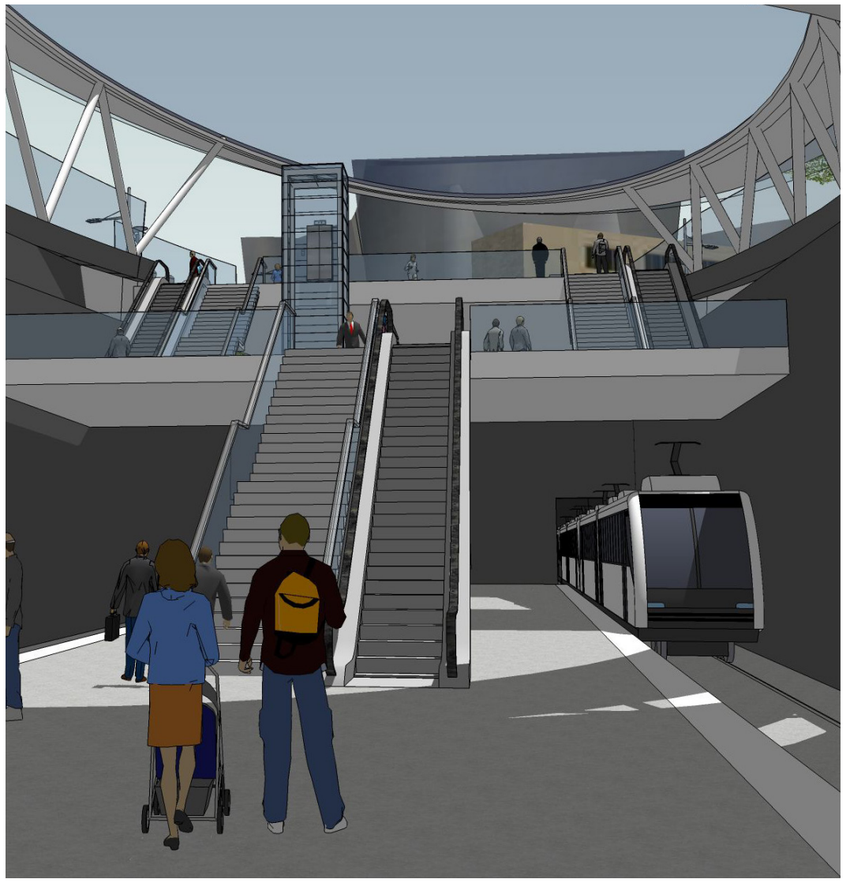
Determining factors in establishing size:

- Train length and anticipated growth;
- Width of vertical circulation elements;
- Clear minimum distances required between platform edge and obstructions;
- Platform safety edge;
- Passenger volumes;
- ADA requirements;
- Additional buffer zone;
- Additional space required during peak travel times;
- Projected increase in passenger volume; and
- Emergency exiting requirements.

▶GUIDELINES

- Avoid conflicting circulation patterns.
- Support safe passenger circulation and access to and from trains.
- Facilitate timely clearing of platform.
- Minimize need for passengers to make decisions on platform, causing hesitation and obstructing flow of traffic.
- Locate access points and vertical circulation elements to evenly distribute vehicle loading and unloading points.
- Minimize visual obstructions, avoid alcoves and hidden areas.
- Ancillary or non-transit functions should not be located on the platform as they may obstruct, inhibit or impede circulation.
- Maintain a clearly delineated, direct path for emergency egress, with easy access to exits or areas of refuge.

◀ Mezzanines increase security by offering opportunities to observe the platform below.



◀ Mezzanines also allow more natural light to filter down to the platform.

2.2.2.13 MEZZANINES

The station mezzanine is one of the primary experiences for transit riders and should provide a welcoming setting that enhances the experience of public transit. The mezzanine also offers the opportunity to present an expression of the station character and the design theme of the transit system through the use of artwork, graphics and other design features.

The mezzanine should ensure the smooth flow of pedestrian traffic, comfortably accommodating multiple passenger circulation routes and facilitating passenger orientation and control. Mezzanines may contain ticket purchase and fare collection turnstiles, directional signage and transit system information, as well as non-public or ancillary spaces such as station agent business centers and security control mechanical and ventilation equipment.

Some influences on mezzanine location include the number of entrances, passenger volume, platform length and code requirements. In some cases, multiple mezzanines may be required.

▶GUIDELINES

- The mezzanine should be bright, airy, open, spacious and filled with natural light.
- Establish a strong visual connection between the mezzanine and the platform to assist in passenger orientation.
- Provide clear, unobstructed access to and from station platforms.
- Access points and vertical circulation elements should be conveniently located.
- Ensure sufficient space is provided to accommodate peak periods and projected growth in ridership.
- Allow sufficient queuing space at elevators, stairs and escalators.
- Minimize travel distances and the number of horizontal and vertical transitions.
- Separate opposite passenger flows when possible.
- Minimize the need for passengers to make decisions on the platform, causing hesitation and obstructing traffic flow.
- Maintain clearly delineated, direct paths for emergency egress, with easy access to exits or areas of refuge.

2.2.2.14 UNDERGROUND CONNECTIONS

Underground connections link remote entries to the station. Their primary advantage is that they can slightly extend the 'reach' of a station and provide an alternate means of access, allowing some passengers to avoid crossing busy streets.

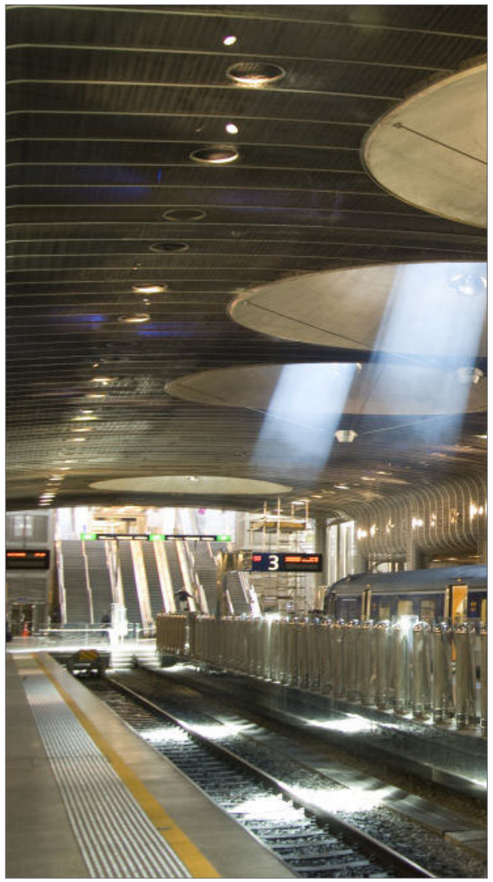
However, by 'removing' transit riders from the street level, and allowing passengers to disperse from the station without engaging in street activity, underground connections can dilute pedestrian activity in the proximity of the station, compromising the effectiveness of casual supervision ('eyes on the street') and actually diminishing pedestrian safety. Moving people from the more open, active street into a tunnel may also have a negative effect on local retail and services and ultimately on the vitality of the station area.

Tunnels also increase the cost of a station and while they may seem to help 'solve' the problem of getting people across a busy street, the same dollars spent on upgrading the streetscape and improving the pedestrian crossing experience may have a much more positive impact on the pedestrian environment.

Tunnels, especially in off-peak travel times, can also be dangerous and care must be taken to include security monitoring equipment, further adding to station cost. If provided, tunnels must be large and bright enough to feel safe and to provide as positive an experience for the transit user as possible.

Unfortunately, while underground connections may seem to offer convenience and safety, they have more negative impacts than positive. For these reasons, pedestrian tunnels should be avoided whenever possible.

◀ Combine artificial and natural light to improve station aesthetics.



◀ (Left) Natural lighting can make underground stations feel larger than they are in reality; (Right) Proper lighting increases safety at night.

◀ Example of on-street solar lighting.

2.2.2.15 LIGHTING

Proper illumination of a site requires both natural and artificial light. When used in conjunction with one another, they can provide high quality, efficient lighting. Lighting levels are dependent on the needs of the particular function being illuminated, the availability and quality of natural light, the intensity of fixtures used and the hours of operation. Site lighting should enhance the quality of the facility both functionally and aesthetically.

▶GUIDELINES

- Conform electrical design to the latest editions of all appropriate applicable standards and codes.
- Identify and satisfy appropriate levels of illumination for all site functions (see Fig. 8 for details).
- Ensure that the light and lighting elements are acceptable for their intended use and physical context.
- Provide proper lighting of all platforms, waiting areas, circulation paths and parking areas to deter criminal activity.
- Illuminate any dangerous site elements (eg. stairs, ramps, platform edges).
- Explore the use of natural light and natural lighting elements. Natural and artificial lighting should be used in conjunction to develop an aesthetically pleasing lighting scheme.
- Consider whether lighting infringes upon neighboring uses. Buffering or shielding elements can be utilized to resolve certain conflicts.
- Establish a system-wide standard bulb, and possibly fixture type, to promote energy savings and cost efficiency.
- Design fixtures and electrical service to meet both long and short-term energy conservation goals.

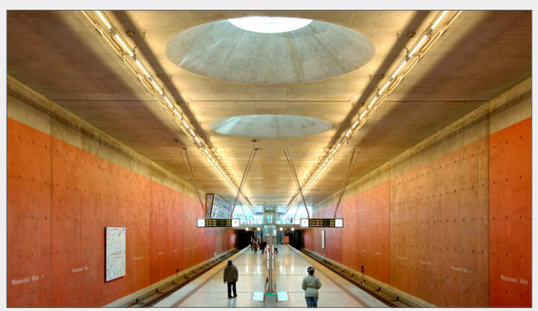
FIG. 8

TECHNICAL CONSIDERATIONS

▶ILLUMINATION LEVELS

Minimum average maintained illumination levels for various areas should be as indicated in the tables based on an update to the Design Criteria. Maintained foot-candle values should be measured as follows:

- For train-ways, in a horizontal plane at the tunnel floor.
- For site and above-grade station areas, in a horizontal plane at-grade.
- For all others, in a horizontal plane 30" above the finished floor.



◀ Proper signage is visible and conveys information quickly.

◀ Signage gives clear directions for complicated information.

◀ An example of a clearly identified emergency evacuation route.

2.2.2.16 SIGNAGE

Signage consists of all graphics and visual images provided to direct or convey information about a facility to its patrons. Signage should clearly and quickly convey information about a site or facility. It must be legible, consistent, sequential and appropriate. There are three basic types of signage:

- **Systems & Information Signage:** To identify the transit system and inform patrons of its operations.
- **Station Signage / Wayfinding:** To inform, direct or alert patrons to site facilities.
- **Advertising:** Space rented to private companies as a revenue source for the system.

▶GUIDELINES

- Refer to Metro's Design Criteria to determine the exact placement, height and structural support system for systems and information and wayfinding signage.
- Ensure ability of signage to convey information quickly and clearly. Signs should conform to the following criteria for legibility:
  - » Signage must be simple, clear and concise for quick identification.
  - » Pictographic signage, such as international symbols, should be used for basic functions (eg., restrooms, directory, etc.).
  - » Text signage must be of appropriate size, color and contrast from its background to be legible. Appropriate signs should be designed to standards for the visually impaired.
  - » Signage must be located and illuminated so as to be easily read with minimal distraction from other elements.
- Standardize signage to ensure consistent size, shape, color and content throughout the system.
- Locate signage for similar functions at consistent locations from site to site.
- Utilize a modular system where practicable to contribute to clarity and consistency as well as enabling ease of placement, modification, maintenance and repair.
- Consider the prevalent direction of pedestrian movement so that signage may be arranged in appropriate sequence.
- Position signage at or before points of decision and organized in a pattern that is predictable from station to station.
- Use signage of appropriate character to create harmony with the station and site design.
- Allow signage to take precedence over artwork where conflicts occur.
- See Fig. 9 for more details concerning site-specific signage.

FIG. 9

TECHNICAL CONSIDERATIONS

▶SITE-SPECIFIC SIGNAGE

STATIONS

- Primary Information
- Station Entrances
- Ticket Dispensers
- Patron Routes to Platforms
- Station Identification (Platform)
- Secondary Information
- System Use Instructions
- Transit Interconnections
- Services (Telephones, etc.)
- Routes to Other Facilities (Concessions, Hotels, etc.)
- Escalator / Stair Directives
- Exit Routes
- Handicapped Routes
- Entry / Use Restrictions
- No Smoking
- Emergency Equipment

STATION SITES

- Bus or Other Public Transportation Modal Interfaces
- Kiss-and-Ride Facilities
- Park-and-Ride Facilities
- Taxi Zones
- Surrounding Traffic Patterns and Requirements
- Adjacent Buildings and Uses

SYSTEM SYMBOL & OFF-SITE SIGNAGE

- Legends
- Station Identification
- Vehicle Destinations
- Fare Zones
- Systems Use Instructions
- Exit Routes
- Routes to Other Facilities
- Pictograms
- Feeder Bus / Other Transit Mode Interconnections
- Entrance Routes
- Services (Telephone, etc.)
- Handicapped Routes
- Escalator / Stairs Directives
- Entry Restrictions
- Restrooms
- No Smoking

◀ Seating can be functional as well as aesthetically pleasing.

◀ Public art brings creativity and culture into transportation systems.

2.2.2.17 SEATING

Although the stay at each station is transient in nature, the amenities provided should enhance the use of the system and encourage continued patronage (see. Fig. 10). Aside from offering necessary comfort and convenience, seating and other station furnishings should add color and visual appeal to the station environment.

▶GUIDELINES

- Employ modular or standardized systems to ease maintenance, repair and replacement of items.
- Discourage seating use as a sleeping platform.
- Select sloped, perforated or folding seating to avoid catching rainwater and spilled liquids.

2.2.2.18 PUBLIC ART

Artwork integrated into the design and development of stations and sites mitigates the adverse impacts related to construction, enhances the environment and promotes public acceptance of and appreciation for the transit system.

▶GUIDELINES

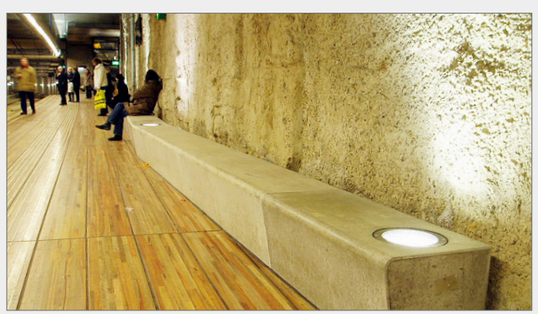
- Use local public art resources to promote city interests. Work with local arts committees and community representatives to review all art. Assist artists in designing technically competent artwork, which can be placed in the public environment. Refer to Metro's Public Art Program for more information.
- Include artists on the station design team to identify opportunities early in the station design process and integrate artwork seamlessly into the design.
- Develop a comprehensive policy toward defining the artwork program as related to the rail system.
- Develop a methodology for estimating the cost of artwork and managing the artwork budget.

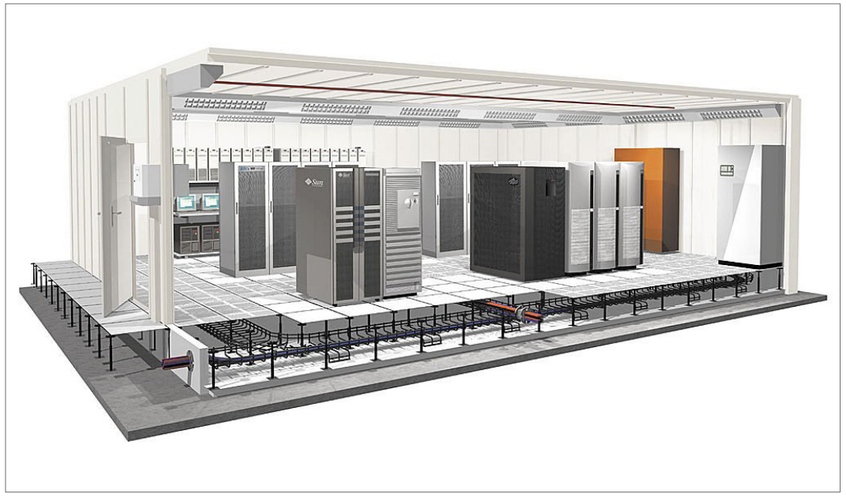
FIG. 10

TECHNICAL CONSIDERATIONS

▶STATION FURNITURE

- Seating
- Leaning Rails
- Trash Receptacles
- Bike Racks / Lockers
- Phone Booths
- Automatic Teller Machines (ATMs)
- Newspaper Dispensers
- Ticket Kiosks
- Advertising Display Framework
- Wind Screens
- Electronic Signage
- Pamphlet Dispensers





◀ Adequate staff and security facilities contribute to a well-managed transit system.

◀ Staff ticket booths should be well-lit, ventilated and comfortable.

2.2.2.19 SUPPORT FACILITIES

Support facilities include all ancillary functions necessary for the operations of the rail transit systems which require physical accommodations (see Fig. 11). Certain functions can be accommodated with standard modules and these can be assigned to specific station locations.

▶GUIDELINES

- Provide requirements for ancillary structures necessary to station and transit system operation.
- Utilize a planning module in designing all support facilities to facilitate standardization of components and furnishings, to save costs and to provide design consistency among stations.
- Ensure the planning module is a minimum 8' × 8' dimension. Depending upon functional requirements, the module may be increased in 4' increments. A standardized module can accommodate a variety of functions.

2.2.2.20 RETAIL / VENDING

A retail facilities plan associated with transit facilities will be established by Metro. Specific vending policies are not established.

FIG. 11

TECHNICAL CONSIDERATIONS

▶SUPPORT FACILITY TYPES

STAFF SECURITY ROOMS
Located at subway stations and specific designated stations. These rooms are located directly off the concourse in an inconspicuous location with a view of the fare vending area.

COMFORT STATIONS
Located at terminus and intermodal transfer stations; these rooms provide toilet facilities for staff and transit operators and will be located at selected stations.

CUSTODIAL ROOMS
Custodial rooms are required at each subway station and selected aerial or at-grade stations.

TRASH ROOMS
Trash rooms are required at each subway station and should be located at the mezzanine level adjacent to the elevator, and (as required), at selected aerial and at-grade stations.

◀ (Left) Air conditioning and heating shafts should be on the roof of transit stations or hidden from view; (Right) Bike racks can be stationed on top of exposed ventilation grates on the ground.

◀ Stations can be designed to provide natural ventilation with minimal equipment, like this station in Tokyo, Japan.

2.2.2.21 MECHANICAL EQUIPMENT

This section outlines general criteria related to functional and design requirements for the Environmental Control Systems (ECS) to provide Heating, Ventilating and Air Conditioning (HVAC) for the rail system with the goal of promoting uniformity of design and to standardize mechanical components of the Metro rail system (see Fig. 12). Mechanical criteria will cover the design of the following ECS:

- Ventilating;
- Heating;
- Air conditioning;
- Drainage for track and inside structures;
- Gratings and miscellaneous metals;
- Fire protection systems;
- Plumbing;
- Escalators; and
- Elevators.

▶GUIDELINES

- Ensure the design complies with local, state and national codes. The general standards for transit design are contained in the requirements of the National Fire Protection Association (NFPA) Standard 130, Fixed Guideway Transit Systems. Design will follow the most stringent of applicable codes and / or industry practices.
- Maintain an acceptable environment for patrons, operators and maintenance personnel by providing HVAC systems for ancillary rooms, subway station platforms, concourse areas, mezzanines and concession areas. These HVAC systems should also prolong the life of equipment through proper control of temperature, pressure and humidity.
- Design the ventilation system to not only offer a healthy and comfortable atmosphere for patrons, but also to provide environmental control in the event of an emergency. In achieving these ends, the system should not be intrusive at the surface level. Thus, the ventilation system should provide for the following:
  - » Supply of fresh air.
  - » Removal of heat and control of air temperatures.
  - » Control and removal of heat, smoke and fumes during an emergency to provide safe evacuation and assist in fire control.
  - » Minimum environmental impact at the surface.

FIG. 12

TECHNICAL CONSIDERATIONS

▶ENVIRONMENTAL CONTROL SYSTEMS

Environmental control systems to control temperature, air velocity, rate of air pressure change, dust, odors and the spread of smoke during fire emergencies should be provided as prescribed here.

AT-GRADE STATIONS

HVAC systems should be provided for the ancillary rooms and for concession areas. ECS will not be provided for patron areas unless:

- The architecture of the station requires ventilation for smoke control; or
- The ECS is part of a joint development project.

SUBWAY STATIONS

HVAC systems for platform and mezzanine areas, concession areas, and the ancillary rooms should be provided. An under-platform exhaust (UPE) system could be provided to supplement emergency ventilation and to capture a portion of the heat released by the trains in stations during both normal and congested operations.

SUBWAY TUNNEL

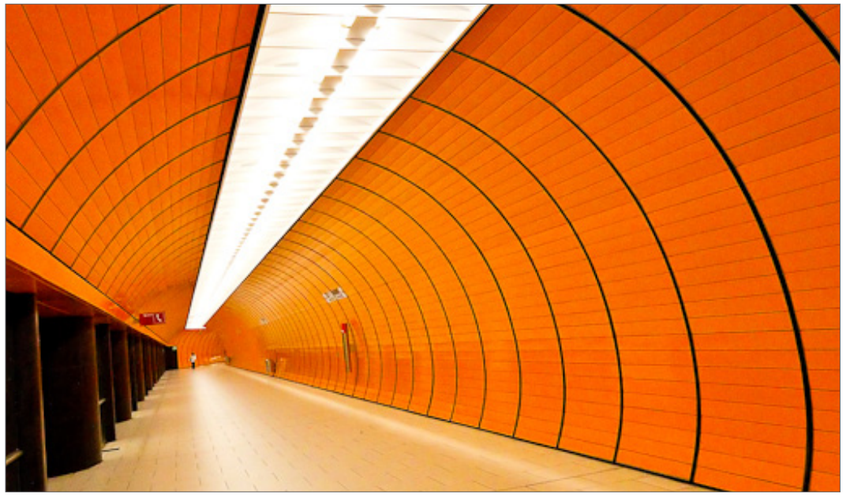
Emergency ventilation shafts that terminate at or above grade at each end of the station and between two stations should be provided. The ventilation shafts should be equipped with reversible fans, fan dampers, sound attenuators and bypass dampers for forced ventilation during congested or emergency operations. Tunnel booster fans should be provided so that the effects of airflow short-circuiting from tunnel to tunnel are reduced during both congested and emergency operations.

MISCELLANEOUS WAYSIDE STRUCTURES

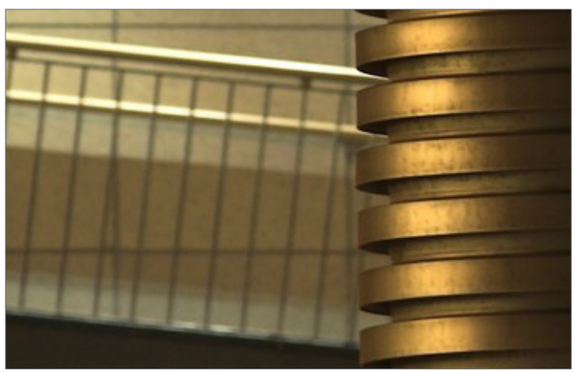
HVAC systems should be provided for the ancillary rooms in miscellaneous wayside structures.

TRACTION POWER SUBSTATIONS

HVAC systems should be provided for traction power substation structures and rooms.



◀ Electrical systems must power standard lighting as well as emergency lighting.



2.2.2.22 ELECTRICAL

This section outlines general criteria related to functional and design requirements for the electrical systems required for underground and at-grade stations, as well as support facilities (see Fig. 13). These guidelines have the goal of promoting uniformity of design and standardization of electrical components in the system. Electrical criteria will cover the design of the following facilities:

- Electrical distribution (3 phase primary) system;
- Lighting;
- HVAC systems;
- Emergency power substation systems;
- Traction power subway substation auxiliary power connections;
- Maintenance yards and shops;
- Elevators and escalators;
- Fare vending;
- Illuminated signing;
- Public telephones;
- Grounding system;
- Lighting protection system;
- Supervisory and control systems;
- Raceway systems;
- Power to signal and communications facilities; and
- Provisions for future growth in the system.

▶GUIDELINES

Electrical design should conform to the latest editions of all appropriate applicable standards and codes (refer to the International Building Code [IBC] and local and state regulations for more information).

FIG. 13

TECHNICAL CONSIDERATIONS

▶INCOMING ELECTRICAL SERVICE REQUIREMENTS

The required electrical energy for the auxiliary power and lighting systems of Metro facilities will be furnished by a single power source. Two primary feeders should serve each subway station and the train control center. One primary feeder should serve each aerial and at-grade facility (see Support Facilities). Each passenger station should have a facility power supply room. Traction power substations will have separate utility power sources.

ELECTRICAL LOADS

Electrical loads connected to auxiliary power equipment should be defined as either non-essential or emergency.

Non-Essential Loads: Non-essential loads are loads which, if de-energized, would have minor effect on patron safety and no effects on system safety.

Essential Loads: Essential loads are loads which, if lost, would have a detrimental effect on patron and / or system safety. See National Fire Protection Association (NFPA) Standard 130 for more information.

ELECTRICAL DISTRIBUTION

General: Primary feeder power should be transformed where required to the nominal A80/277 volts for distribution.

Unit Substation Service: Entry from the utility company should contain a primary-fused disconnect switch or a circuit breaker for the utility primary at '0480/277 volt dry-type transformer. Where it is feasible, 480/277 volt three-phase power can be supplied from the utility company directly to the switchgear without the need of transformers.

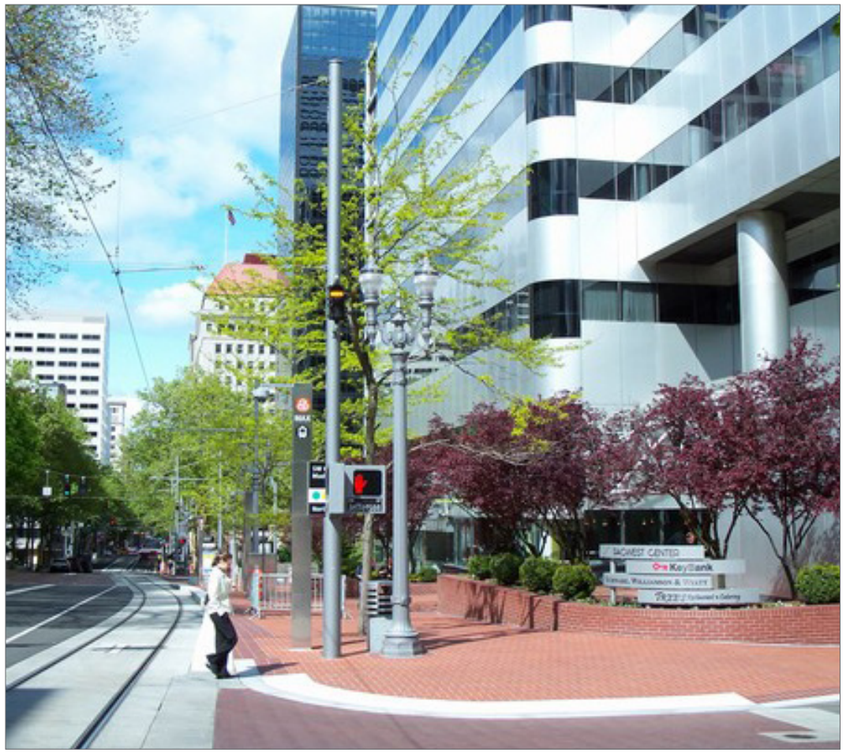
EMERGENCY POWER SYSTEMS

Train Control Center: The emergency power system for the train control center should meet the requirements of station Signaling Systems (NFPA 71) and utilize an uninterruptible power supply (UPS).

Subway Stations: Subway stations should include emergency power systems:

- An uninterruptible power supply.
- An uninterruptible power supply for a part of the emergency lighting (in the public areas of station only), including emergency exit stair lights and exit signs.
- A standby engine-generator capable of supplying essential power loads and all emergency lighting in the station as well as emergency functions (eg. sump station for tunnel) normally supplied from that station.

◀ Physical cues, materials and textures help create successful urban environments.



◀ Landscaped intersection.

2.3 LANDSCAPE ARCHITECTURE

Landscape architecture is a synthesis of arts, sciences, technical philosophies and practices that seek to care for people in a holistic, creative and sustainable manner. While these guidelines attempt to address all of the philosophies and practices to some degree, the 'tool kit' emphasizes the design of the urban environment in regard to the health, safety and welfare of the citizens and visitors of Los Angeles. The ultimate goal is to improve the pedestrian environment by defining a safe, contextually integrated transportation system that is efficient, convenient and facilitates the concept of stimulating and creating an extraordinary downtown urban environment.

2.3.1 LANDSCAPE ARCHITECTURE PRINCIPLES

2.3.1.1 IMPROVED VISUAL CUES & WAYFINDING

Many physical elements are orchestrated to improve visual cues, wayfinding and create a successful urban environment. Street trees, sidewalks, lighting, comfortable seating, legible signage and other amenities are components of the composition that create a safe, well-defined and enjoyable environment for people. Several of the basic design concepts considered when creating such an environment include line, form, texture, color, variety, rhythm, harmony, balance, emphasis and light.

2.3.1.2 SUSTAINABILITY

Sustainable design is the philosophy and practice of designing the built environment and planning for public services to comply with the principles of economic, social and ecological sustainability.

The values of sustainable design include:

- Meet the needs of the present without compromising the quality of life of future generations.
- Maintain economic growth while producing an absolute minimum of pollution, repairing environmental damages of the past, producing less waste and extending opportunities to live in a pleasant and healthy environment.
- Meet human needs by maintaining a balance between development, social equality, ecology, and economics.
- Demand systematic consideration to a project's environmental impacts, energy use, natural resource consumption and economic and social implications.
- Realize that sustainability is best addressed at the inception of a project and continues to be relevant throughout the planning, programming, design, construction, and ownership phases.

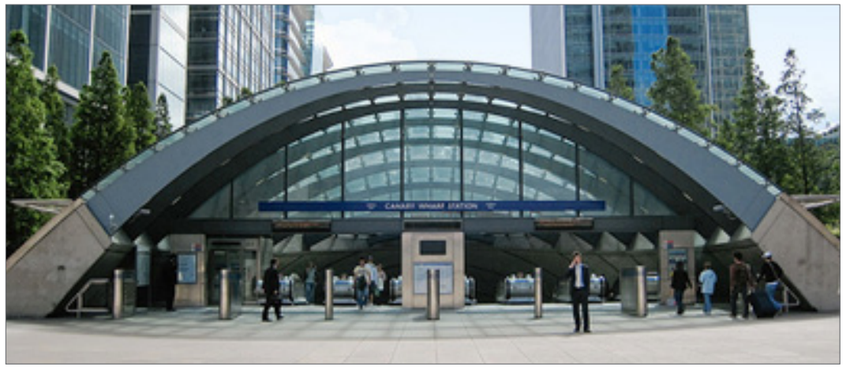
The 'Green Street' concept is an instrumental element of the proposed Regional Connector Transit Corridor project. 'Green Streets' are a sustainable stormwater strategy that meets regulatory compliance and resource protection goals by using a natural systems approach to manage stormwater, reduce flows, improve water quality and enhance watershed health *(Source: Portland Bureau of Environmental Services)*.

2.3.1.3 CLIMATE-APPROPRIATENESS

Los Angeles' favorable marine climate encourages the indoor-outdoor relationship of people, their dwelling spaces and their environment. The Sunset Western Garden Book defines the Los Angeles Downtown area as Zone 23 and is one of the most favored garden climates in North America for the growing of subtropical plants. The climate is characterized by an air- drained thermal belt with 85% of the seasonal conditions being influenced by the Pacific Ocean and 15% from the Interior (Santa Ana winds). The winter season includes minimal frost and low temperatures range from 38 – 23°F. The USDA Plant Hardiness Zone Map defines the area as zone 9A with an average annual minimum temperature of 20 – 26°F. The lowest recorded temperature at the Los Angles Civic Center is 28°F.

The 'Green Street' concept is an instrumental element of the proposed Regional Connector Transit Corridor project.

◀ Streetscape



◀ Station Entrance

◀ Train Portal Structure

2.3.2 LANDSCAPE ARCHITECTURE COMPONENTS

2.3.2.1 STATION AREAS & STREETSCAPES

The three major components of the Regional Connector are: (1) Stations and Station Entrances; (2) Train Portal Structures; and (3) Streetscapes.

▶STATIONS & STATION ENTRANCES

Landscape architectural spaces that are typically associated with stations and station entrances include plazas and pocket parks. Plazas are typically an open urban public space, similar to a city square or a large courtyard and are usually surrounded by buildings. Plazas adjacent to stations are a gathering or focal point for human activity and the primary use is to safely and efficiently facilitate the circulation of pedestrians to and from the station. Additional uses may include retail sales, passive recreation and cultural events. Pocket parks are small parks accessible to the public that provide greenery, passive recreation and sometimes a children's playground. Parks may be created to enhance a monument, historic marker or an art project. Parks also provide areas for wildlife habitat.

LAYOUT

The recommended layout of a pedestrian area (sidewalk or plaza adjacent to the street) at the street level includes an access zone, a continuous 'walkway zone', a parkway zone and depending on adjacent land uses may include a 'transitional or amenity zone'.

The access zone is 18" – 24" from the face of the curb including a 6" curb and a masonry, often granite or brick band. The parkway zone is adjacent to the access zone and is ideally a continuous 'green street' stormwater treatment system designed to collect, retain or treat runoff. The parkway zone may integrate and include site furnishings. The 'transition or amenity zone' may include landscape planting and site furnishings depending on adjacent land uses.

STATION & STATION PORTAL PLANTING MATERIAL GUIDELINES

The following are guidelines unique to stations and are in addition to the General Landscape Planting Material Guidelines:

- Trees may be planted with regular spacing and / or in straight rows to define and direct pedestrian routes, draw attention to the plaza and frame views out of the plaza.
- Extend the plaza tree configuration into the adjacent right of way (ROW) or streetscape for continuity.
- Plant trees in quantity to provide shade and cool the area.
- Plant trees to define the public space or spaces.
- Plant a single species or trees that are similar in character for definition and special effect.
- Some variety in the selection of species may be appropriate to provide additional color, texture and fragrance.

▶TRAIN PORTAL STRUCTURES

The train portal structure defines the transitional space of the train tunnel from below-grade to above-grade. Landscape design for these areas is both ornamental and functional. Safety is the greatest concern around portals and ultimately deterring pedestrian circulation away from a train portal is preferable.

LAYOUT

The recommended landscape layout of a train portal structure is primarily a landscape zone. Formal geometry that creates a bold statement is recommended to harmonize with the urban landscape.

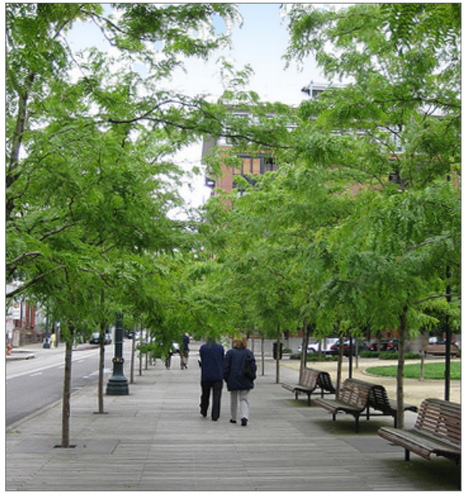
PLANTING MATERIAL GUIDELINES

The following are guidelines unique to train portal structures and are in addition to the General Landscape Planting Material Guidelines:

- Trees should be formally planted in a bosque and draw attention to the presence of the portal.
- Trees may relate to adjacent street trees in regard to layout but vary significantly in shape, color and texture to draw attention.

◀ Pedestrian streetscape with adjacent plaza.

◀ Examples of raised streetscape planter strips.



◀ Examples of different pedestrian streetscape treatments.

- Visual screening of unsightly views and noise buffering with shrubs should be sought.
- Screening and / or fencing with shrubs can add to safe circulation around or away from portals.
- The portal may present opportunities to integrate 'green street' applications.

▶STREETSCAPES

The streetscape is the composition of elements in and adjacent to a street that defines the urban form and includes elements such as building forms and styles, landscape materials, street furniture, paving etc. The streetscape along the Regional Connector and the adjacent streetscapes are the unifying element of the project that integrates all other urban design components.

LAYOUT

Streetscapes may include adjacent plazas and pocket parks and include the following recommended zones:

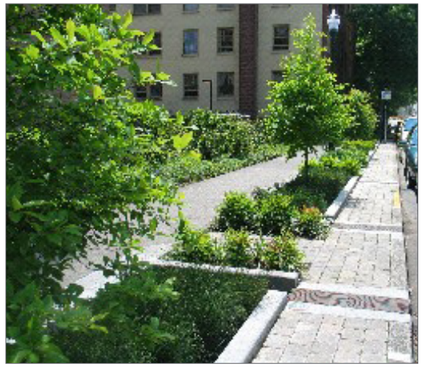
- An 'access zone' immediately adjacent to the curb;
- A 'parkway zone';
- A continuous 'walkway zone'; and
- Depending on adjacent uses, may include a 'transitional or amenity zone'.

The access zone is a minimum 18" – 24" from the face of the curb including a 6" curb and a masonry, often granite or brick band. The parkway zone is adjacent to the access zone and is, ideally, a continuous 'green street' stormwater treatment system designed to collect, retain or treat stormwater runoff. The parkway zone may however integrate and include site furnishings. The transition or amenity zone may include landscape planting and site furnishing depending on the adjacent land uses.

PLANTING MATERIAL GUIDELINES

The following are guidelines unique to streetscapes. Otherwise, please see the General Planting Material Guidelines for further direction.

- Trees should have the same characteristics on both sides of the streets.
- A planting strip may be appropriate in a streetscape taking the form of a large area between the sidewalk and the curb and where pedestrian circulation volumes are low and a 'green street' planter is not applicable.
- In addition to trees, the streetscape planting strip may include shrubs, groundcovers and turf (turf is recommended to be used sparingly or in a very unique design solution).
- Planting strips should be at least 5' wide to accommodate irrigation systems and to provide adequate room for healthy tree root systems.
- For planter strips that are less than 5' wide and where 'green street' planters are not an option, groundcovers or paving may be considered. Preferred groundcover widths are between 2' to 4'. Pervious paving is recommended where widths are less than 2' and where pedestrian traffic occurs.
- Streetscape planter strips should not be elevated above curbs except to provide positive drainage.



◀ Raingardens collect water from impervious surfaces to support landscaped planters.

◀ Green roofs absorb energy from the sun and cool the building below.

◀ Green walls give character to otherwise blank surfaces.

2.3.2.2 ECO FEATURES

▶'GREEN STREET' INFILTRATION PLANTERS OR RAINGARDENS

A raingarden is a planted depression or swale that allows rainwater runoff to be absorbed from impervious urban surfaces like roofs, driveways, walkways and compacted lawn areas. Runoff is reduced by allowing stormwater to soak into the ground 'on-site' instead of flowing into storm drains and surface waters which promote erosion, water pollution, flooding and diminished groundwater.

Native plants are recommended for raingardens primarily for maintenance purposes as they generally don't require fertilizer and are more tolerant of the local climate, soil and water conditions. A selection of wetland edge vegetation, such as wildflowers, sedges, rushes, ferns, shrubs and small trees, absorb excess water flowing into the raingarden. Water filters through soil layers before entering the groundwater system. Root systems enhance infiltration, moisture redistribution, and diverse microbial populations involved in biofiltration. Also, through the process of transpiration, raingarden plants return water vapor into the atmosphere.

Ferns, grasses – especially 'native' grasses – and sedges are excellent plant materials for a raingarden. These plants love the sun and can exist in a variety of shapes, sizes and shades of green. Ferns require specific consideration as they require shade from a street tree, structure or building.

▶ECOROOF – GREEN ROOF

A green roof is a roof of a building or structure that is partially or completely covered with a vegetation system. The system is typically composed of sedum, herbs, grasses and / or bulbs. The plants grow in a layer of engineered growing medium or soil. The vegetation and medium are contained by a waterproofing membrane and may also include additional layers such as a root barrier and drainage and may include an irrigation system.

▶GREEN WALL

There are two major categories of green walls: (1) green façades; and (2) living walls.

Green façades are wall systems where climbing plants or cascading groundcovers are trained to cover specially designed supporting structures. Plant materials can be rooted at the base of the structures, in intermediate planters or on rooftops. Green façades can be attached to existing walls or built as freestanding structures. Living walls (also called biowalls, 'mur' vegetal or vertical gardens) are composed of pre-vegetated panels or integrated fabric systems that are affixed to a structural wall or frame. Modular panels can be comprised of polypropylene plastic containers, geotextiles, irrigation and growing medium and vegetation. This system supports a great diversity of plant species, including a mixture of groundcovers, ferns, low shrubs, perennial flowers and edible plants. Living walls perform well in full sun, shade and interior applications, and can be used in both tropical and temperate locations.

Based on current applications and data from the experience of green roofs, green walls can offer considerable cost savings to both the public and private sectors. For example, the reintroduction of vegetation into cities has been correlated with the reduction of the urban heat island effect, and therefore will reduce energy consumption. Cities are cooler and quieter through shading, evaporative transpiration and the absorption of sound by green walls *(Source: Things You Need to Know About Green Walls, By Randy Sharp, MBCSLA, MCSLA, ASLA, LEED AP, July 1, 2007, Building Design and Construction)*.

▶BIOSWALES

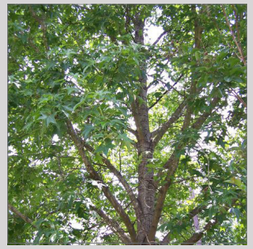
'Urban' bioswales are landscape elements designed to remove silt and pollution from surface runoff water. They consist of a swaled drainage course with gently sloped sides (less than 6%) and filled with vegetation, compost and / or riprap. The waters flow path, along with a wide and shoulder ditch, is designed to maximize the time water spends in the swale, which aids the trapping of pollutants and silt. Depending upon the geometry of land available, a bioswale may have a meandering or almost straight channel alignment. Runoff from a bioswale is typically conveyed to a stormwater system.

▶PLANT MATERIALS

Landscape plant materials are living, dynamic, sustainable natural systems that define form, space and order in the urban environment. The design intent for the use of plant material is to provide for the health safety and welfare of people and our environment. Plant material also adds interest, ornamentation and when thoughtfully located, can provide aesthetic continuity, reduce noise and reduce pollution. Relief from exposure to the elements and to unsightly elements may be achieved by landscape screens and tree canopies. All planting material should fit the climate, design character and maintenance requirements for which they are planted. Urban environments present unique challenges to the health of vegetation including the effects of pollution, and damage from pedestrians, maintenance and automobiles. Specific site conditions must be fully understood prior to plant selection. Micro-climates and soil conditions are key factors that determine where and which plant material will thrive. Ultimately, plant material should be selected that is safe, maintenance friendly and use / treat water efficiently and effectively.

FIG. 14

RECOMMENDED STREET TREES



▶AMERICAN SWEETGUM
LIQUIDAMBAR STYRACIFLUA

- Medium-sized tree growing 65 to 115' tall, with a trunk up to 6.5' in diameter.
- The leaves look somewhat similar to maples; are a dark green and glossy, and in most cases turn orange, red, and purple colors in autumn.

▶CALIFORNIA FAN PALM
WASHINGTONIA FILIFERA

- Native to Southern California;
- Grows up to 75' in good growing conditions.
- When the leaves die they bend downwards and form a skirt around the trunk.

▶TORREY PINENUT
PINUS TORREYANA

- A broad, open-crowned pine growing 25 to 50' tall with long needles growing in groups of five.
- Grows slowly in dry, sandy soil.

▶INDIAN LAUREL FIG
FICUS NITIDA

- A small to medium-sized evergreen tree with smooth gray bark, aerial roots, upright growing branches and very dense foliage.
- Grows 30 to 60' tall, with a 30' spread; does well in full sun.

▶LONDON PLANE
PLATANUS X HISPANICA

- Large deciduous tree growing from 65 to 115' tall, with a trunk up to 10' or more in circumference.
- Its leaves are thick and stiff-textured and the bark is usually pale grey-green and smooth.

2.3.3 GENERAL LANDSCAPE PLANTING MATERIAL GUIDELINES

2.3.3.1 TREES

Trees are generally the most monumental and enduring of the plant materials and can ultimately determine the success of a landscape design. Significant to trees are their presence, character and role in the landscape. Trees vary in shape, color, texture and scale, and can be a focal point in the form of a specimen or massed to define a space. They can frame and / or screen views, noise and wind, and provide shelter in the form of shade and wildlife habitat. Trees can be a valuable component of stormwater treatment and management and help to clean the air. Specific to urban design, trees can unify districts visually and create continuous pedestrian-scale spaces that link commercial and non-commercial streets and neighborhoods. The urban environment is more comfortable and safe when there are trees to provide shade, beauty and amenity. For recommended street trees, please see Fig. 14 (left).

▶LOCATION

- Protect and preserve existing trees to be saved.
- The placement of street trees should respond to the use of the street as well as adjacent land uses. A variety of species that have similar characteristics are encouraged for continuity and to avoid the challenges of over planting a single species.
- Plant only a single species where the design concept is to unify an area.
- Plant trees for mature growth that will fit a space or define the desired public space.
- Consider mature tree size and maintenance while designing to avoid conflicts with signs, lights, overhead and underground utilities, utility poles and fire hydrants. Ensure that trees have adequate room to grow.
- Plant trees 25' on center for most species. Reduced spacing may be appropriate depending on the space and species.
- When planting or replacing trees adjacent to existing trees, select new trees of similar characteristics to those being replaced including form, scale, texture, and color.
- Maintain minimum sight triangle and corner triangle distances for safe view of oncoming traffic and pedestrians.
- Trees must not interfere with visibility of traffic control devices, especially at intersections.
- Trees adjacent to alleys should be located per code.
- Trees should be located a minimum of 54" from the face of the curb.
- The location of trees should not conflict with the performance of street lights. Individual species and site conditions will vary.
- All trees should be located and adjusted as necessary to ensure the drivers visibility of regulatory signs.

▶SIZE

- Trees should be large enough when planted to provide beneficial shade and meet the design criteria for which they are intended (eg. street trees should define the clear route of travel and when appropriate create a sense of separation from automobile circulation).
- Street trees in tree grates (high pedestrian traffic areas) should be 3" caliper minimum with high branching for a variety of reasons, including pedestrian safety.
- The branching height of mature trees on the pedestrian side of the street should be no less than 8' above the sidewalk.
- The branching height of mature trees on the automobile traffic side of the street should be no less than 13' – 6" above the sidewalk. Special consideration should be given to the location and maintenance of trees adjacent to bus stops.

▶SELECTION

- Street trees should be thornless and fruitless to minimize pedestrian hazards and maintenance. The form should ideally be single trunked with upright growth. Trees should be strong wooded, resistant to disease and insects and have a medium to long life expectancy.
- Trees selected to be located adjacent to station area identification signage and retail store fronts should not obstruct signage.
- Trees that require minimal water should be considered. Irrigation must be designed to deliver the appropriate amount of water to each tree with minimal waste until the tree is established (typically two years). Ideally, trees will provide water quality treatment characteristics as a component of a stormwater drainage treatment system.
- Small varieties of thornless and fruitless trees may be used where lower branching habit will not interfere with pedestrians, vehicles or driver visibility.

FIG. 15

RECOMMENDED SHRUBS

▶BUSH POPPY
DENDROMCON RIGIDA / D. HARFORDII

- A native California evergreen shrub growing up to 6' tall.
- Can be maintained at 3'.
- Leaves are blue-gray-green and the bush is covered in yellow blooms.
- Very drought tolerant once established.

▶CLEVELAND SAGE
SALVIA CLEVELANDII

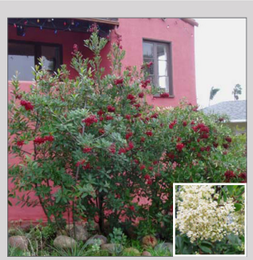
- A California native with graceful silvery-green leaves, arching branches, and whorls of purple flowers in spring and summer.
- Grows up to 4' tall.

▶COFFEEBERRY
RHAMNUS CALIFORNICA

- Attractive native California shrub, 6 to 8' high.
- Bears black berries and tolerates all soil types.
- Ideal as a background or screen plant.

▶REDBERRY
RHAMNUS CROCEA

- Medium evergreen California native shrub.
- Grows 4 to 10' tall, as wide as it is tall.
- Tight clusters of small, waxy, pinkish-white flowers give way to red berries in springtime.



▶CHRISTMAS BERRY, HOLLY BERRY OR TOYON
HETEROMELES ARBUTIFOLIA

- This California native is an evergreen shrub that produces delicate white flowers and large clusters of red berries that birds love.
- Can be pruned into a small tree.

2.3.3.2 SHRUBS – DESIGN PRINCIPLE

Shrubs are the most varied and versatile of planting materials and provide numerous shapes, colors and textures. Shrubs can be ornamental and often massed to define space. They frame and / or screen views, help buffer noise and screen against wind. Shrubs are also elemental in stormwater treatment and stormwater management and help clean the air. Specific to urban design, shrubs must be carefully selected and located so as not to create unsafe conditions (eg. define spaces that are not defensible and feel unsafe). Shrubs can unify districts visually and create continuous pedestrian-scale spaces that link commercial and non-commercial streets and neighborhoods. Shrubs make the urban environment more comfortable and safe by providing beauty and streetscape amenity.
For recommended shrubs, please see Fig. 15 (left).

▶LOCATION

- Locate shrubs to define focal point (eg. specimen planting).
- Massing / grouping: locate masses or groups of shrubs to be a focal for ornament.
- Locate shrubs to screen unsightly views, wind and noise.
- Locate shrubs to provide fencing for safety.
- Locate shrubs to define access and circulation routes.

▶SIZE

Anticipate full growth. However, the installed plant size should be large enough and in quantity to provide the intended effect.

FIG. 16

RECOMMENDED GROUNDCOVER & CLIMBING VINES

▶BEACH STRAWBERRY
FRAGARIA CALIFORNICA / FRAGARIA CHILOENSIS

- Forms lush, compact mat 4-6" high.
- Glossy dark green leaves and white flowers.
- Mow or cut back annually to force new growth.

▶GERMANDER OR WALL GERMANDER
TEUCRIUM CHAMAEDRYS OR T. X LUCIDRYS

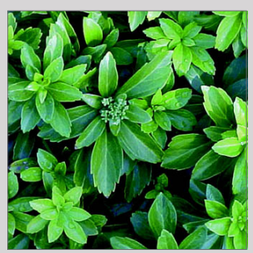
- This plant can be sheared into a neat groundcover or allowed to grow to a full height (about 1').
- Produces lavender flowers in the spring.

▶ASIAN JASMINE OR IVORY STAR JASMINE
TRACHELOSPERMUM ASIATICUM

- Evergreen, vining groundcover up to 20' across.
- Has glossy, dark green leaves and pale yellow, pinwheel-shaped flowers with a jasmine scent.

▶SAN DIEGO MARSH ELDER
IVA HAYESIANA

- This fast-growing native is widely used for slope coverage and erosion control.
- Grows 1 to 2' tall and 4 to 6' across with inconspicuous flowers.
- Summer watering will help maintain a more lush appearance.
- Prune annually.



▶PACHYSANDRA
PACHYSANDRA TERMINALIS

- Grows slowly but has a crisp, neat growth form.
- New foliage is bright green, changing to dark green with age.
- Small white flowers on 1 to 2" spikes.
- Withstands shade and is widely used under trees.

Note: The species listed are preferred for their dependability, relative low maintenance and drought resistance.

2.3.3.3 GROUNDCOVER & CLIMBING VINES – DESIGN PRINCIPLE

Groundcovers and vines provide functional and aesthetic benefits. Visual effects include consistent form, texture, color and seasonal color. Groundcovers define circulation routes when combined with trees and shrubs, can cover large areas and can facilitate the separation of pedestrians and automobiles. Vines can also function as groundcovers, however they are more effective on walls and / or structures, particularly as a component of a green wall system.

Groundcovers and vines are used to create a consistent carpet of plant material. Mixed species for ornament are not necessarily appropriate for urban design. For groundcovers to be successful they must create a tight, dense planting. Groundcovers require minimal water and maintenance once established, however, they will require adequate water and maintenance until they are established and will tolerate only minimal foot traffic.

Turf, if planted, should be planted on prepared soil from sod or seed using water conserving sod or seed. Seeding allows for greater turf selection but requires approximately six months of regular maintenance to become established. Newly seeded areas require protection from pedestrians and must be kept moist until the seed germinates.

For recommended groundcover and climbing vines, please see Fig. 16 (left).

FIG. 17

RECOMMENDED PERENNIAL GRASSES

▶SAN DIEGO SEDGE
CAREX SPISSA

- This large sedge has a form similar to that of an ornamental grass.
- Produces gray leaves to 5 feet tall and yellow, grass-like flowers in the spring.

▶CALIFORNIA FESCUE
FESTUCA CALIFORNICA

- Flowering stalks rise to 5' above large clumped grass (2-3' tall) in late spring, early summer.
- Striking appearance and good adaptability, with clumps holding their shape well throughout the year.

▶DEER GRASS
MUHLENBERGIA RIGENS

- This large, perennial, California native has dense clusters of narrow, bright green leaf blades and tall, slender flower stalks.
- Bold enough to be used as a focal point of the garden.
- Once established, is extremely drought tolerant.

▶GIANT WILD RYE
LEYMUS CONDENSATUS

- Large clumping grass 4-5' across and reaches 6-8' tall in bloom.
- Distinct silver-gray foliage.
- Prune annually to encourage new growth.

▶BLUE OAT GRASS
HELICTOTRICHON SEMPERVIRENS

- Evergreen, bright blue-gray, with narrow leaves in fountain-like clump.
- Grows 2-3' high and wide.
- Stems bear straw-colored flower clusters.

Note: The species listed are preferred for their dependability, relative low maintenance and drought resistance.

2.3.3.4 PERENNIAL GRASSES – DESIGN PRINCIPLE

Perennial grasses, like shrubs, are varied and versatile planting materials. Grasses provide numerous shapes, colors and textures. Grasses can be ornamental and / or massed to define space and can also frame and / or screen views, noise and wind. Grasses are also elemental in stormwater treatment and management and help to clean the air. Specific to urban design, grasses must be carefully selected and located to not create unsafe conditions (eg. define spaces that are not defensible and feel unsafe). Grasses can, however, help to unify districts visually and create continuous pedestrian-scale spaces that link commercial and non-commercial streets and neighborhoods. Grasses also make the urban environment more comfortable and safe by providing beauty and amenity. For recommended perennial grasses, please see Fig. 17 (left).

▶LOCATION

- Locate grasses to define focal point (eg. specimen planting).
- Locate masses or groups of grasses to be a focus, or for ornament.
- Locate grasses for screening of unsightly views, wind and noise.
- Locate grasses to provide fencing for safety.
- Locate grasses to define access and circulation routes.

▶SIZE

Anticipate full growth. However, the installed plant size should be large enough and in quantity to provide the intended effect.

2.3.3.5 ANNUALS – DESIGN PRINCIPLE

Annual and perennial flowers are not recommended except in planter pots and or in hanging baskets.

◀ Site furnishings can double as seating and planters.

◀ Seating with lighting.

◀ (Left) Banner pole; (Right) Green wall.

2.3.4 SITE FURNISHINGS

Site furnishings are functional, attractive and important components of the urban landscape. Site furnishings promote safety by defining circulation routes and activating spaces. Combinations of site furnishings vary with use and will contribute to the definition and potential unity of spaces. A thoughtful composition of furnishings will provide comfort and articulate an aesthetic identity. High quality materials and finishes should be specified to provide beauty, durability and minimize maintenance.

▶DESIGN GUIDELINES TYPICAL OF ALL SITE FURNISHINGS

- Design and selection should be complementary to the design intent of the project and vernacular, or other furnishings.
- Design and materials must be durable, high quality and low maintenance.
- Furnishings must be mounted securely to paving or structure and per manufactures specification unless otherwise specified.
- Refer to ADA standards, uniform building code and local code for minimum code requirements.

▶DESIGN PRINCIPLES & GUIDELINES SPECIFIC TO INDIVIDUAL URBAN DESIGN ELEMENTS

The following are design principles and guidelines specific to individual urban design elements and in addition to the Design Guidelines Typical of All Site Furnishings previously defined.

2.3.4.1 GATEWAY MARKERS & BANNER POLES

Gateway markers and banner poles should be designed as a component of a unified family of site furnishings that are designed to define a district or neighborhood. The unification of components embraces all furnishings. Vertical elements are commonly the most prominent and include but are not limited to gateway markers, lighting and signage. Design considerations include layout, proportion, selection of materials and detail design. Ultimately, the scale of a design is developed for the pedestrian. However, the mass transit and motor vehicles need to be considered in regard to design speeds and visibility. A variety of scales may also be considered in regard to the program of the space, the architecture and a hierarchy of entrances.

▶DESIGN GUIDELINES

- Locate to be unobtrusive yet visible and adjacent to primary circulation.
- See also Design Guidelines Typical of All Site Furnishings.

2.3.4.2 WALLS

Walls primarily facilitate grade change (retaining walls) and definition of space, and they direct or screen views and / or weather. Walls further define circulation and depending on their height, can provide seating opportunities. Safety concerns focus on excessive height and the appropriate safeguards when grade transitions exceed 30". The design and layout of walls in a pedestrian-friendly urban landscape should never create indefensible or unsafe conditions. In addition to environmental benefits, green walls can add interest, ornament, reduce scale and provide continuity when transitioning from urban spaces to buildings.

▶DESIGN GUIDELINES

- See Design Guidelines Typical of All Site Furnishings.

◀ Seating on the side, facing activity.

◀ Paving defines scale, order and identity.

◀ Seating, surfacing and tree grates contribute to an area's identity.

2.3.4.3 SEATING

Perhaps more than any other furnishing, seating activates urban spaces. Seating is typically adjacent to pedestrian routes and may provide a place to rest, socialize and enjoy the urban landscape. Seating may be located in shady places, sunny places and oriented towards interesting or scenic vistas. Seating can also function as walls and planters. The dimensions of the following guidelines are included as they are recognized as standards. Creativity is encouraged as long as health, safety and welfare criteria are met.

▶DESIGN GUIDELINES

- Seating height: 16" – 18" high.
- Seating depth: 16" for seats without backs and 14" with backs.
- Walls or ledges may be 12" – 20" high and ideally 16" wide.
- Walls designed for seating on both sides should be 30" wide.
- Seating orientation should back to a wall or mass and not to major circulation routes. Additional orientations include back-to-back, face-to-face for conversation and if solitary, perpendicular to circulation routes.
- Locate seating 3' clear of circulation.
- See also Design Guidelines Typical of All Site Furnishings.

2.3.4.4 SURFACING

Paving is an important element in urban design and a component of the framework for organization, articulation and the safe design of spaces. Permeable paving is an environmentally conscious consideration and applicable when site conditions are appropriate. Non-slip textures, colors and patterns that clearly define uses and circulation should be considered. The design concept may consider the paving as neutral background or may be ornate to create a focal point or a pattern to define order, scale and identity. The application may be designed to define a single space or perhaps add continuity to two or more spaces.

▶DESIGN GUIDELINES

- Emphasize circulation routes.
- Style (eg. formal, informal, organic).
- Cost and maintenance: material, installation, maintenance.
- Construction and strength / use: rigid or flexible pedestrian, vehicular.
- Bonding and jointing: visual, practical, structural.
- Material selection relative to context.

2.3.4.5 TREE GRATES

Tree grates are an appealing application for protecting trees and maintaining a continuous grade around trees. Their design can include artwork that expresses the local community and should be designed to complement other furnishings and ultimately unify the urban landscape. Special applications may include the articulation of green street planters with specially designed grates to accommodate pedestrian seating, bike racks and other site furnishings.

▶DESIGN GUIDELINES

- Tree grates should be at least 6' × 6' and fit the tree planter opening.
- Ideally, the design of the tree grate should relate to the paving pattern and site furnishings. Openings in the design of the tree grate pattern cannot exceed ¼".
- The design of the tree grate must allow for adequate tree growth.
- Tree grates should be securely attached, but designed for easy removal for maintenance.
- See also Design Guidelines Typical of All Site Furnishings.

◀ Typical handrail for stairs.

◀ Simple and elegant trash receptacle.

◀ Bollards help to separate cars from the pedestrian realm.

◀ Bike racks present an opportunity to reflect the character of the local community through their design. This bicycle rack is integrated with the metal grate / ventilation shaft.

2.3.4.6 FENCING & RAILINGS

Fencing and railings may protect people from unsafe conditions, further define circulation and separate uses. Fencing and railings also facilitate definition of space and may direct or screen views and / or weather. They also provide an opportunity for ornament and artistic expression and should relate to the vernacular of other furnishings. Rails may be used for leaning instead of seating to accommodate short-term respite.

▶DESIGN GUIDELINES

- Handrail height is typically 32".
- Guardrail height is typically 48".
- Guardrails adjacent to bike ramps are typically 52".
- See also Design Guidelines Typical of All Site Furnishings.

2.3.4.7 TRASH RECEPTACLES

Trash receptacles provide an opportunity for ornament and artistic expression and should relate to the vernacular of furnishings. Their location should be easily accessible for use and maintenance. Their functional design should facilitate effective storage of refuse and recycling.

▶DESIGN GUIDELINES

- Locate adjacent to activity nodes in sight of, but not adjacent to, seating areas.
- Trash receptacles should be securely constructed and anchored, but designed for easy removal of waste.
- Trash receptacles should be unobtrusive yet visible.
- Receptacles should include covered tops and sealed bottoms.
- See also Design Guidelines Typical of All Site Furnishings.

2.3.4.8 BOLLARDS

Bollards may protect people from unsafe conditions, control circulation, separate uses and subtly facilitate definition of space. They also provide an opportunity for ornament, artistic expression and should relate to the vernacular of furnishings. Bollards may include lighting.

▶DESIGN GUIDELINES

- Locate 2½' from curb face.
- Locate 36" clear of each other and any other furnishings.
- Locate 60" clear of each other for primary circulation.
- Some bollards may be removable for maintenance and emergency access.
- See also Design Guidelines Typical of All Site Furnishings.

2.3.4.9 BIKE RACKS

Bike racks are an efficient application for bike storage. Their design can include artwork that expresses the character of the local community and should be designed to complement other furnishings and ultimately unify the urban landscape. Special applications may include the articulation of green street planters with specially designed racks to accompany pedestrian seating and other site furnishings.

▶DESIGN GUIDELINES

- Locate in close proximity to mass transit stations, but do not allow bike racks to interfere with circulation.
- The rack must be designed to allow both the frame and one wheel to be simultaneously secured to the structure.
- See also Design Guidelines Typical of All Site Furnishings.

◀ Kiosks provide useful information and showcase advertisements about the city.

◀ Artwork encourages discussion about creativity and public space.

◀ (Left) Planting pots offer flexibility to a landscape; (Right) Parking meters should be efficiently placed and unobtrusive.

2.3.4.10 KIOSKS

Kiosks may be considered to be a part of wayfinding signage. However, they may also include temporary and / or seasonal information. Kiosks are located adjacent to pedestrian routes and should attract attention. Kiosks should be well lit and accessible from all sides. Their design can include artwork that expresses the local community character and should be designed to complement the other furnishings.

▶DESIGN GUIDELINES

- Kiosks are unique and should be used sparingly.
- See also Design Guidelines Typical of All Site Furnishings.

2.3.4.11 PUBLIC ART

Public art is an engaging expression of community character. Applications are limitless.

DESIGN GUIDELINES

- See also Design Guidelines Typical of All Site Furnishings.

2.3.4.12 FOUNTAINS

Fountains incorporate the design element of water into the landscape and provide an interesting opportunity to articulate reflected light and sound. Fountains may be for drinking and / or amenity and should be easy to locate along pedestrian routes. They may also be the focal point of an urban space.

2.3.4.13 VENDORS CARTS

Vendor carts provide an extraordinary opportunity to active the urban environment by providing a variety of food and goods. Their mobility allows them to operate regularly or intermittently and can facilitate a daily lunch routine or conversely, a seasonal event or festival.

▶DESIGN GUIDELINES

- Locate to be unobtrusive yet visible and adjacent to primary circulation routes for easy accessibility.
- Cluster and locate carts together and in an organized manner.
- Locate without any interference to the pedestrian circulation system.

2.3.4.14 NEWSPAPER RACKS

In addition to dispensing publications, newspaper racks may be located to control circulation, separate use, and subtly facilitate definition of space.

▶DESIGN GUIDELINES

- Locate to be unobtrusive yet visible and adjacent to primary circulation routes for easy accessibility.
- Cluster and locate newspaper racks with other elements in an organized manner 2½' from curb face or against a wall.
- Locate without any interference to the pedestrian circulation system.

2.3.4.15 PLANTING POTS & CONTAINERS

Planting pots and containers provide an opportunity to add greenery where the permanent location of plant material may not be feasible or desirable. They may protect people from unsafe conditions, control circulation, separate uses, and subtly facilitate definition of space. They also provide an opportunity for ornament and artistic expression, and should relate to the vernacular of furnishings.

▶DESIGN GUIDELINES

- Locate to be unobtrusive yet visible and adjacent to primary circulation routes to further define circulation and ornament.
- Cluster and locate planters / racks with other elements in an organized manner.
- See also Design Guidelines Typical of All Site Furnishings.

2.3.4.16 MAILBOXES, PARKING METERS, UTILITY BOXES, METERS & MANHOLES

Coordinate with the responsible entities to organize utility location and structures as effectively and efficiently as possible.

2.3.4.17 PERMITTING

Per jurisdictional requirements.

2.3.4.18 MAINTENANCE REQUIREMENTS

Per jurisdictional requirements.

APPENDIX

APPENDIX

SPECIAL EVENTS SCHEDULE FOR DOWNTOWN LOS ANGELES

The following listed events passed in 2008.
These events were held in the downtown Central Business Area, in the following locations:

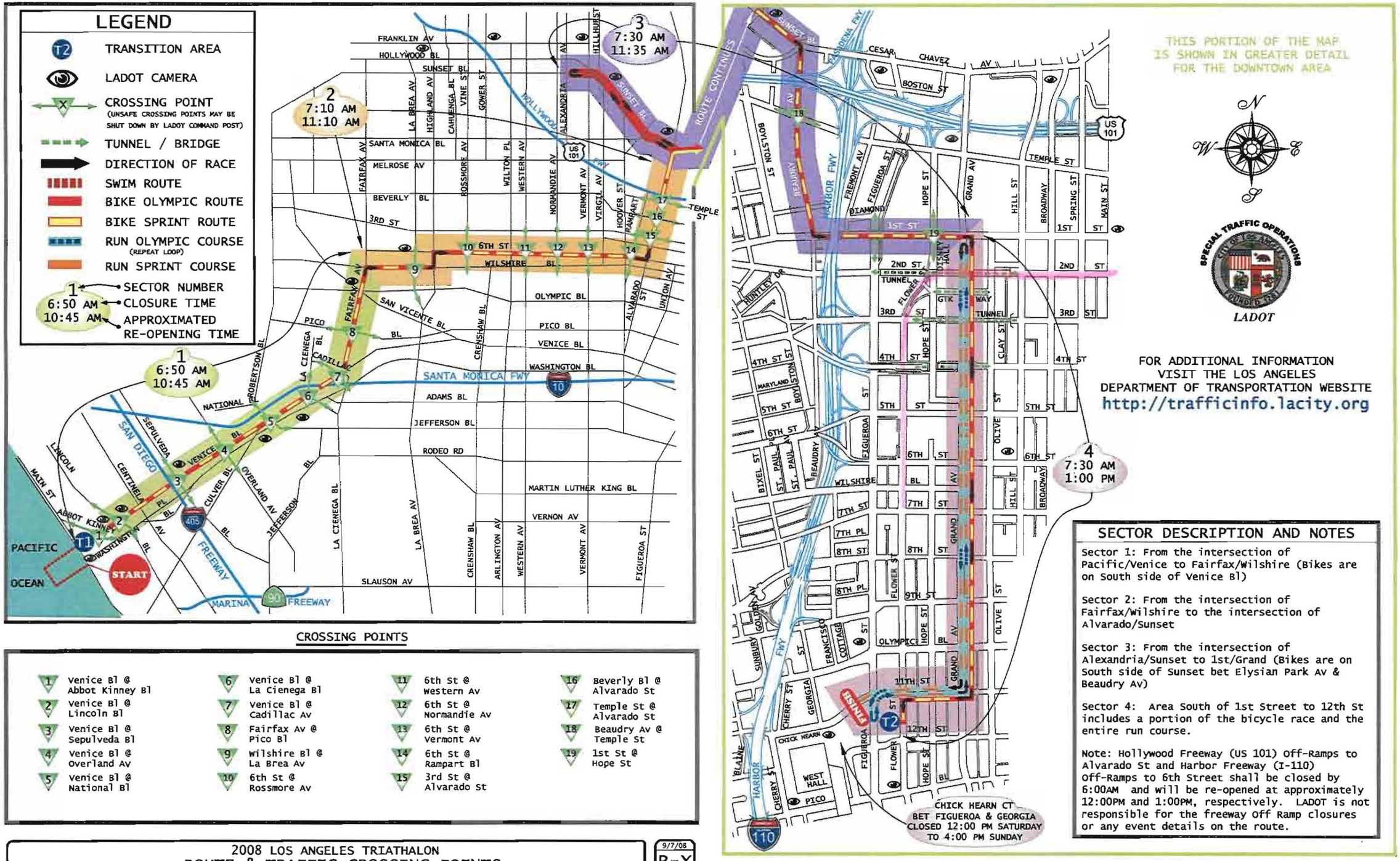
- Flower Street from 7th Street to 2nd Street
- 2nd Street from Flower to Alameda
- Main Street and Los Angeles Street to 2nd Street and Temple

TITLE OF EVENT	EVENT DATE	START TIME	END TIME	CLOSED STREETS
Annual Golden Dragon Parade	2/9/2008			Along Broadway and Hill Street. Details?
LA Marathon	3/1/2008	evening		the area bounded by 3rd Street, Grand Avenue, 5th Street and Flower Street will be closed to install the Marathon Finish Line Stage
LA Marathon	3/2/2008	3:00 AM	11:59 PM	(1) Day of the Event Street Closures: On Sunday, March 2, 2008 starting at 2:00AM, the Los Angeles Department of Transportation (LADOT) will start closing streets along the Bike Tour, Marathon and 5k routes. The Bike Tour route will be secured by 5:30AM for a 5:50AM start. The Marathon route will be secured by 7:30AM for the 7:50AM wheelchair race and 8:17AM Marathon. To meet scheduling some streets may be closed earlier. (2) Freeway Off Ramp Closure: To meet scheduling some freeway off ramps may be closed earlier. The contractor for the LA Marathon will start closing freeway off-ramps beginning at 12:01 AM on Sunday, March 2, 2008 with the exception of the Harbor Freeway (I-110) Northbound 3rd Street (East) off-ramp which will be closed at 9:00PM on Saturday, March 1, 2008. The event does not require the closure of any freeway on-ramps. (3) Pre-Marathon Street Closures: Beginning on Saturday March 1st at 5AM, Flower Street bet 5th and 6th Streets and at 9:00PM, Flower St bet General Kosciuszko Way and 5th St and 3rd St tunnel bet Hill St and Figueroa St will be closed on in preparation for the end of the race. All streets will be re-opened by Midnight Sunday, March 2, 2008. Bike and 5K Assembly Area Closures: Figueroa Street between Exposition Boulevard and Martin Luther King Boulevard will be closed at 12:01AM on Sunday, March 2, 2008 and will be re-opened by noon on Sunday. Bike Tour Route Re-Opening: The segments of the Bike Tour route that do not overlap with the Marathon route will re-open by 8:30AM on Sunday, March 2, 2008. 5K Route Re-Opening: The segments of the 5K route that do not overlap with the Marathon route will reopen by 10:00AM on Sunday, March 2, 2008. *See map for course*
Womans' March Against the War	3/8/2008	10:30 AM	11:59 PM	Olympic and Broadway.
Saint Patrick Day Parade*	3/17/2008	8:30 AM	2:00 PM	2nd Street closed from Spring to Los Angeles Street *See map for parade route*
March Against Iraq War*	3/18/2008	7:00 AM	5:00 PM	
March Against HR 4437*	3/25/2008	9:00 AM	3:00 PM	
United Farm Workers Rally*	3/26/2008	10:30 AM	7:30 PM	
Annual Cherry Blossom Festival*	4/3/2008			Set-Up
Annual Cherry Blossom Festival*	4/4/2008			San Pedro Street between 1st & 3rd; Second Street between Los Angeles & Central
Annual Cherry Blossom Festival*	4/5/2008			San Pedro Street between 1st & 3rd; Second Street between Los Angeles & Central

Fiesta on Broadway/ Cinco de Mayo*	4/25/2008	7:00 PM	11:59 PM	Broadway between 1st and Temple Streets
Fiesta on Broadway/ Cinco de Mayo*	4/26/2008	12:00 AM	11:59 PM	North-South Streets: Broadway closed from Temple to 11th Street, Hill Street closed from 6th to Olympic Street, Main Street closed from 9th to 11th Street
Fiesta on Broadway/ Cinco de Mayo*	4/27/2008	12:00 AM	11:59 PM	East-West Streets: 1st, 2nd, 3rd, 4th, 5th, & 6th Streets closed between Spring and Hill Street. 7th, 8th, 9th, & Olympic Streets closed from Main to Olive
Fiesta on Broadway/ Cinco de Mayo*	4/28/2008	12:00 AM	5:00 AM	
May Day: May 1st Day of Action in Support of Worker's Rights	5/1/2008	11:00 AM	2:00 PM	Downtown Los Angeles traffic will be severely impacted during the pm peak hours within the quadrants of Broadway from Pico Boulevard to Temple Street and 5th Street between Alameda Street and Figueroa Street.
May Day: Immigrant Rights	5/1/2008	11:00 AM	3:00 PM	The Harbor Freeway (I-110) off ramps to 6th Street will be closed at 2:00pm
May Day: Full Rights for Immigrants	5/1/2008	11:00 AM	3:00 PM	Assembly area street closures are likely to begin at 10:30 am: Park View Street between 7th Street and Wilshire Boulevard and Broadway between 9th Street and Olympic Boulevard; Olympic Boulevard between Main Street and Hill Street. At approximately 1:30pm, LADOT engineers will gradually begin securing the march route.
May Day: Legalize LA	5/1/2008	12:30 PM	8:00 PM	*See map for route of participants*
Children Day Festival (Día del Niño)*	5/16/2008			
Children Day Festival (Día del Niño)*	5/18/2008			
Relay for Life Downtown*	8/1/2008	5:00 PM		Westside lane of Main Street between 1st Street and Temple; etc.
Relay for Life Downtown*	8/2/2008		8:00 AM	Westside lane of Main Street between 1st Street and Temple; etc.
National Night Out*	8/5/2008	6:00 PM	10:00 PM	1st Street, between San Pedro and Alameda (Little Tokyo)
Nisei Week	8/16/2008	11:00 AM	7:00 PM	San Pedro between 2nd and 3rd Streets (please see 2007 schedule of street closures for more detailed summary from LA City webite)
Downtown Film Festival's "green" programming	8/17/2008	12:00 PM	10:00 PM	along Grand Avenue between 2nd and 4th Street on Bunker Hill
Nisei Week	8/17/2008	11:00 AM	9:00 PM	11:00 AM - 4:00 PM San Pedro between 2nd and 3rd Streets. 5:00 PM - evening, Grand Parade
Nisei Week	8/24/2008	4:00 PM		1st Street between Central Avenue and San Pedro, Street Dancing
LA Triathlon	9/7/2009	3:30 AM	evening	In order to secure the cycle and run courses, street closures by the Department of Transportation will begin as early as 3:30am. Participants cross 2nd St via Grand Ave. Hollywood Freeway (US 101) Off-Ramps to Alvarado Street and Harbor Freeway (I-110) Off-Ramps to 6th Street shall be closed by 6:00AM and will be re-opened at approximately 12:00PM and 1:00PM, respectively. *See map for course*

60th Primetime Emmy Awards	9/21/2008	all day	all day	Council Motion: Street Closures are as follows: - Chick Hearn Ct bet Cherry and Figueroa Sts from 6:00 AM, Monday, Sept 15, 2008 thru 12:00 AM(midnight) on Wednesday, Sept 24, 2008. For the following closures, local and emergency access must be maintained at all times. - 11th St bet Figueroa and Flower Sts from 6:00 AM, Sunday, Sept 21, 2008 thru 12:00 AM, Monday, Sept 22, 2008. - 12th St bet Figueroa and Flower Sts from 6:00 AM, Sunday Sept 21, 2008 thru 12:00 AM, Monday, Sept 22, 2008. - Cherry St bet Pico and Olympic Bls from 6:00 AM, Sunday, Sept 21, 2008 thru 2:00 AM, Monday, Sept 22, 2008. - Figueroa St bet Venice and Olympic Bls from 6:00 AM, Sunday, Sept 21, 2008 thru 12:00 AM, Monday, Sept 22, 2008. - Flower St bet Pico Bl and 9th St from 6:00 AM, Sunday, Sept 21, 2008 thru 12:00 AM, Monday, Sept 22, 2008. - Pico Bl bet Flower and Cherry Sts from 6:00 AM, Sunday, Sept 21, 2008 thru 12:00 AM, Monday, Sept 22, 2008
Grand Avenue Festival	9/28/2008	11:00 AM	5:00 PM	Council Motion: Street Closures are as follows: -Grand Ave from First St to Hope Pl, from 1:30 PM, Saturday Sept 27, 2008 to 11:59 PM, Sunday, Sept 28, 2008, except for emergency vehicles. A twenty foot Fire Lane will be established and maintained on the west side of Grand Ave from First St south to Hope Pl. -Grand Ave East Sidewalk from First St to Second St, from 9:00 AM, Saturday Sept 27, 2008 to 11:59 PM, Sunday, Sept 28, 2008. -Grand Ave from Temple St to First St from 8:00 PM, Saturday, Sept 27, 2008 to 7:00 PM, Sunday, Sept 28, 2008 except for emergency vehicles. Local traffic will be allowed to access the Music Center and County Parking Lots. -First St bet Hope St and Olive St, from 9:00 AM , Sunday, Sept 28, 2008 to 7:00 PM, Sunday, Sept 28, 2008. -Second St bet Hope St and Grand Ave from 1:30 PM, Saturday, Sept 27, 2008 to 11:59 PM, Sunday, Sept 28, 2008. -Second St bet Olive St and Grand Ave from 9:00 AM, Saturday, Sept 27, 2008 to 11:59 PM, Sunday, Sept 28, 2008. -Third St bet Hope St and Grand Ave from 1:30 PM, Saturday, Sept 27, 2008 to 11:59 PM, Sunday, Sept 28, 2008
Detour Music Festival	10/4/2008	12:00 PM		Spring between Aliso and 2nd, Main between Aliso and 2nd, and Temple between Broadway and Los Angeles, 1st between Broadway and Los Angeles
Step Out: Walk to Fight Diabetes	10/26/2009	9:00 AM	11:59 PM	Walk starts and ends at City Hall
Old Bank District Holiday Block Party*	12/6/2008	2:15 PM	11:59 PM	The evening will see 4th street closed between Spring and Main, as well as Main street shut between 4th and 5th.
Weekly Farmer's Markets				
650 W. 5th Street	Wednesday	11:30 AM	2:00 PM	5th Street between Grand and Flower Streets
Little Tokyo	Thursday	10:00 AM	2:00 PM	1st Street between Main Street and Spring Street
7th and Figueroa	Saturday	10:00 PM	4:00 PM	In plaza or closing off a street?

* Listed Events are from Lieutenant Kenneth Hill Special Events Unit of the City of Los Angeles in his report for TTTA titled Special Event in Downtown Los Angeles, on April 10, 2009

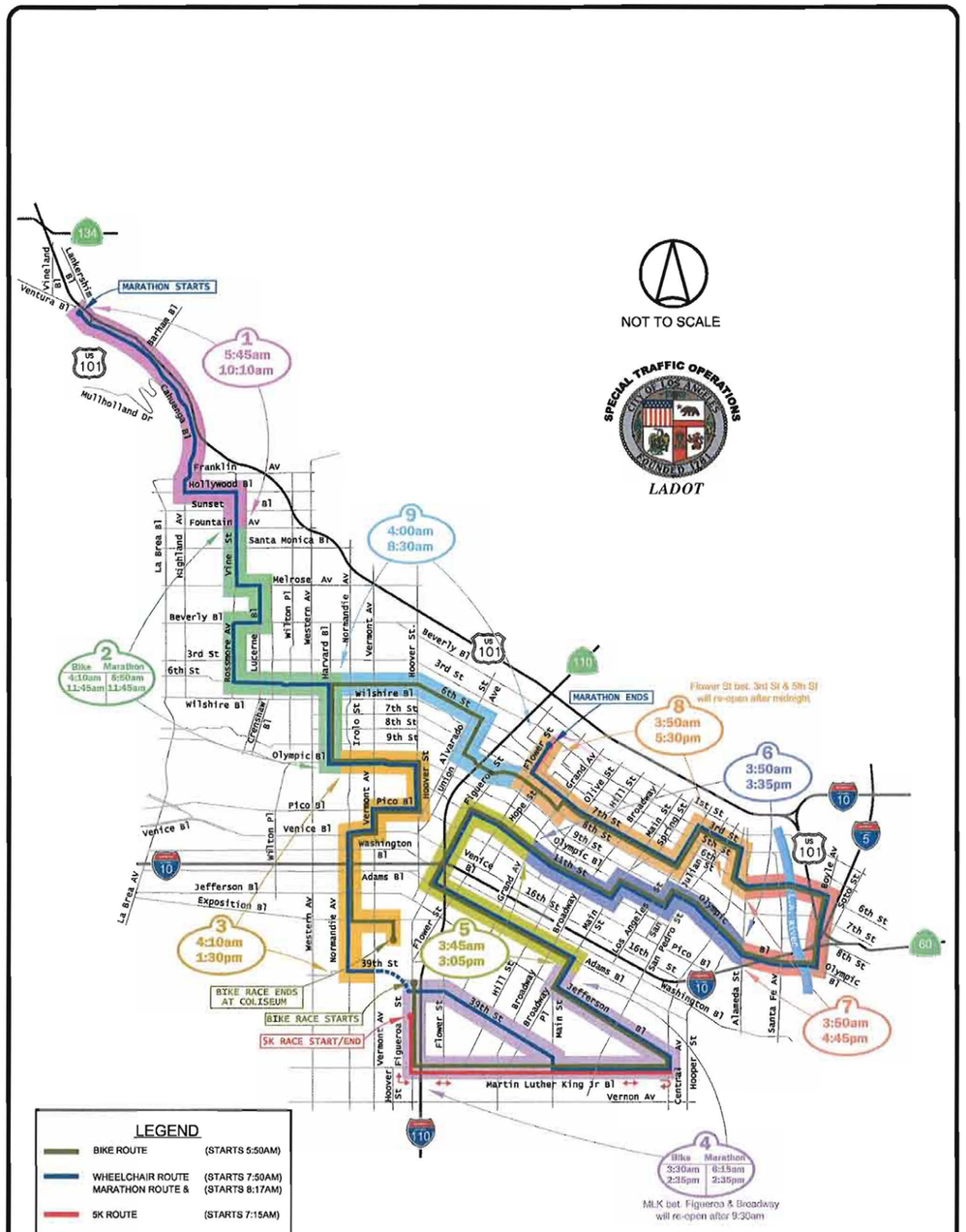


CROSSING POINTS

1 Venice Bl @ Abbot Kinney Bl	6 Venice Bl @ La Cienega Bl	11 6th St @ Western Av	16 Beverly Bl @ Alvarado St
2 Venice Bl @ Lincoln Bl	7 Venice Bl @ Cadillac Av	12 6th St @ Normandie Av	17 Temple St @ Alvarado St
3 Venice Bl @ Sepulveda Bl	8 Fairfax Av @ Pico Bl	13 6th St @ Vermont Av	18 Beaudry Av @ Temple St
4 Venice Bl @ Overland Av	9 Wilshire Bl @ La Brea Av	14 6th St @ Rampart Bl	19 1st St @ Hope St
5 Venice Bl @ National Bl	10 6th St @ Rossmore Av	15 3rd St @ Alvarado St	

2008 LOS ANGELES TRIATHALON
ROUTE & TRAFFIC CROSSING POINTS

9/7/08
R-X



2008 LOS ANGELES MARATHON

ENGINEERING SECTORS (APPROXIMATED CLOSURE & OPENING TIME)

3-2-08

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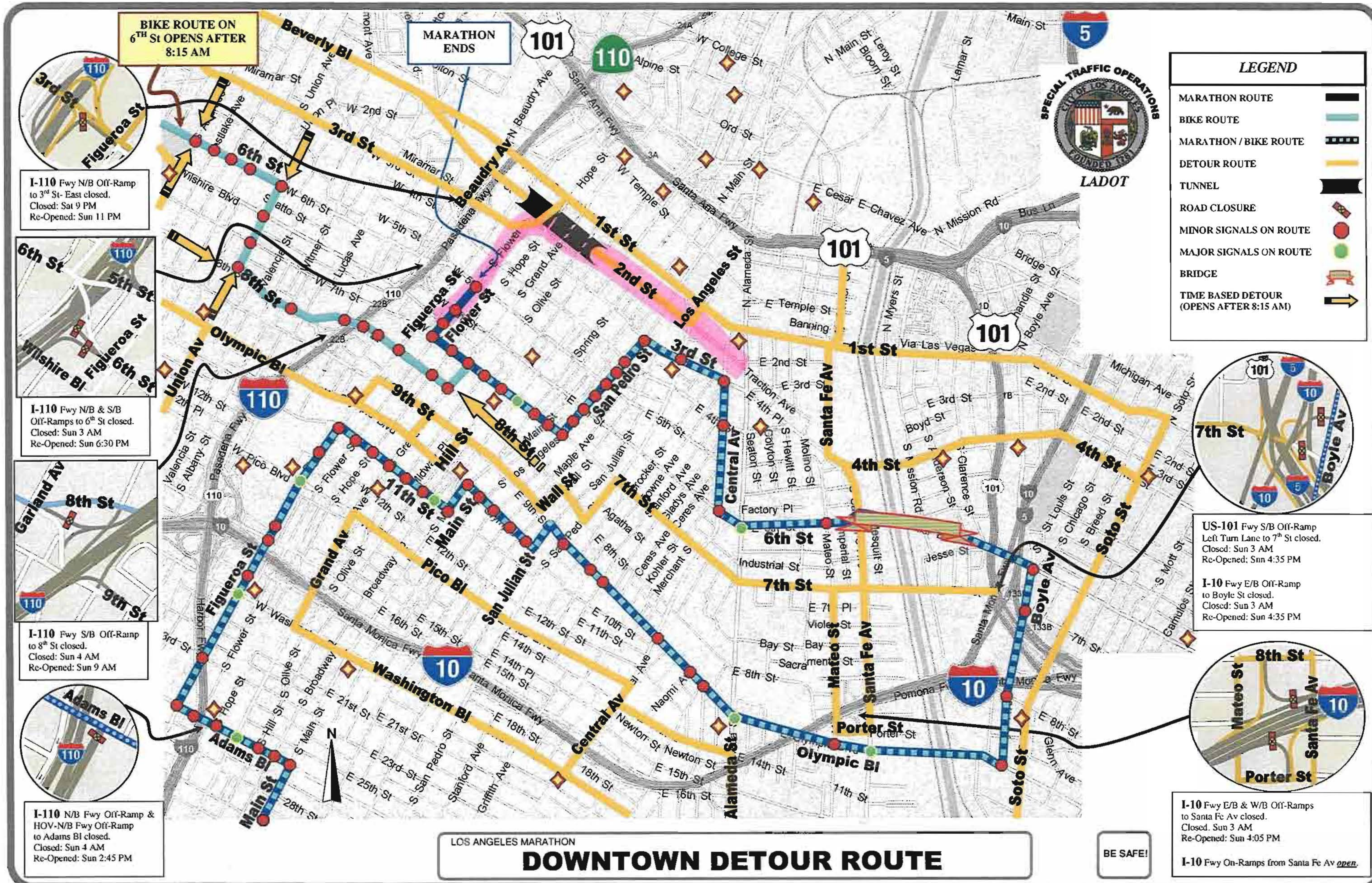
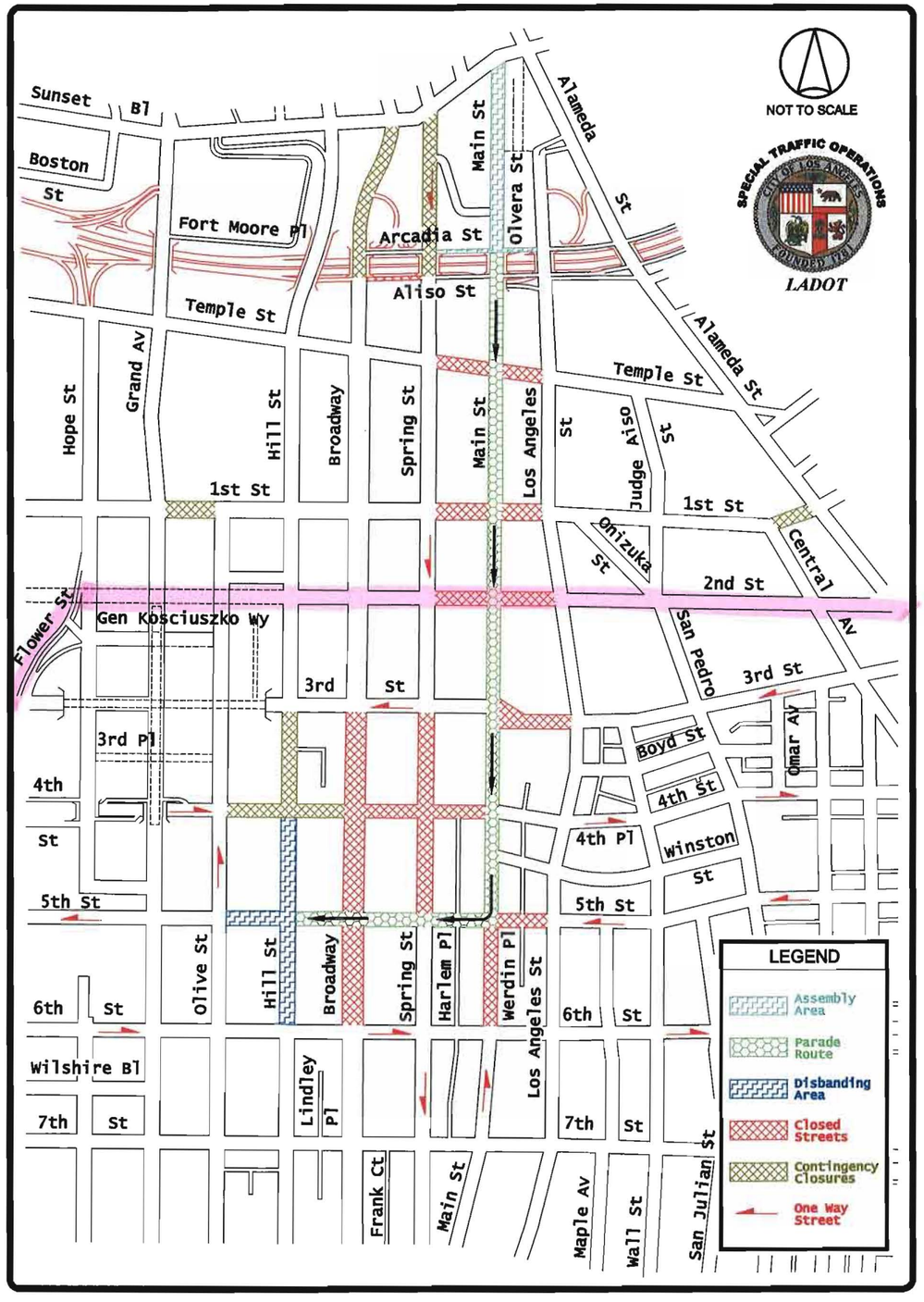

BIKE ROUTE ON 6TH St OPENS AFTER 8:15 AM
MARATHON ENDS
LEGEND
MARATHON ROUTE
BIKE ROUTE
MARATHON / BIKE ROUTE
DETOUR ROUTE
TUNNEL
ROAD CLOSURE
MINOR SIGNALS ON ROUTE
MAJOR SIGNALS ON ROUTE
BRIDGE
TIME BASED DETOUR (OPENS AFTER 8:15 AM)
SPECIAL TRAFFIC OPERATIONS
CITY OF LOS ANGELES
FOUNDED 1781
LADOT
I-110 Fwy N/B Off-Ramp to 3rd St- East closed. Closed: Sat 9 PM Re-Opened: Sun 11 PM
I-110 Fwy N/B & S/B Off-Ramps to 6th St closed. Closed: Sun 3 AM Re-Opened: Sun 6:30 PM
I-110 Fwy S/B Off-Ramp to 8th St closed. Closed: Sun 4 AM Re-Opened: Sun 9 AM
I-110 N/B Fwy Off-Ramp & HOV-N/B Fwy Off-Ramp to Adams Bl closed. Closed: Sun 4 AM Re-Opened: Sun 2:45 PM
US-101 Fwy S/B Off-Ramp Left Turn Lane to 7th St closed. Closed: Sun 3 AM Re-Opened: Sun 4:35 PM
I-10 Fwy E/B Off-Ramp to Boyle St closed. Closed: Sun 3 AM Re-Opened: Sun 4:35 PM
I-10 Fwy E/B & W/B Off-Ramps to Santa Fe Av closed. Closed: Sun 3 AM Re-Opened: Sun 4:05 PM
I-10 Fwy On-Ramps from Santa Fe Av open.
LOS ANGELES MARATHON
DOWNTOWN DETOUR ROUTE
BE SAFE!



ST. PATRICK'S DAY PARADE

TMP

C

MAY 1ST IMMIGRATION & LABOR MARCH AND RALLY AREA CLOSURES AND TIMES

SPECIAL TRAFFIC OPERATIONS
CITY OF LOS ANGELES FOUNDED 1781
LADOT

N
W E
S
NOT TO SCALE

C
2:30pm
8:00pm
Contingency - Only if crowd exceeds route capacity

C
2:00pm
5:00pm
Contingency - Only if crowd exceeds route capacity

C
10:00am
3:00pm
Contingency - Only if crowd exceeds assembly area storage capacity

E
Per LADOT Command Post
Emergency Closure Only If Needed

10:00am
10:00pm

R
2:30pm-6:30pm
2:30pm-8:00pm

E
Per LADOT Command Post
Emergency Closure Only If Needed

A
1:15pm-2:30pm
10:00am-3:00pm

R
1:15pm-3:00pm
1:15pm-4:00pm

R
2:00pm-3:30pm
2:00pm-4:30pm

A
11:00am-3:30pm
10:00am-4:00pm

C
10:00am
4:00pm
Contingency - Only if crowd exceeds Broadway storage capacity

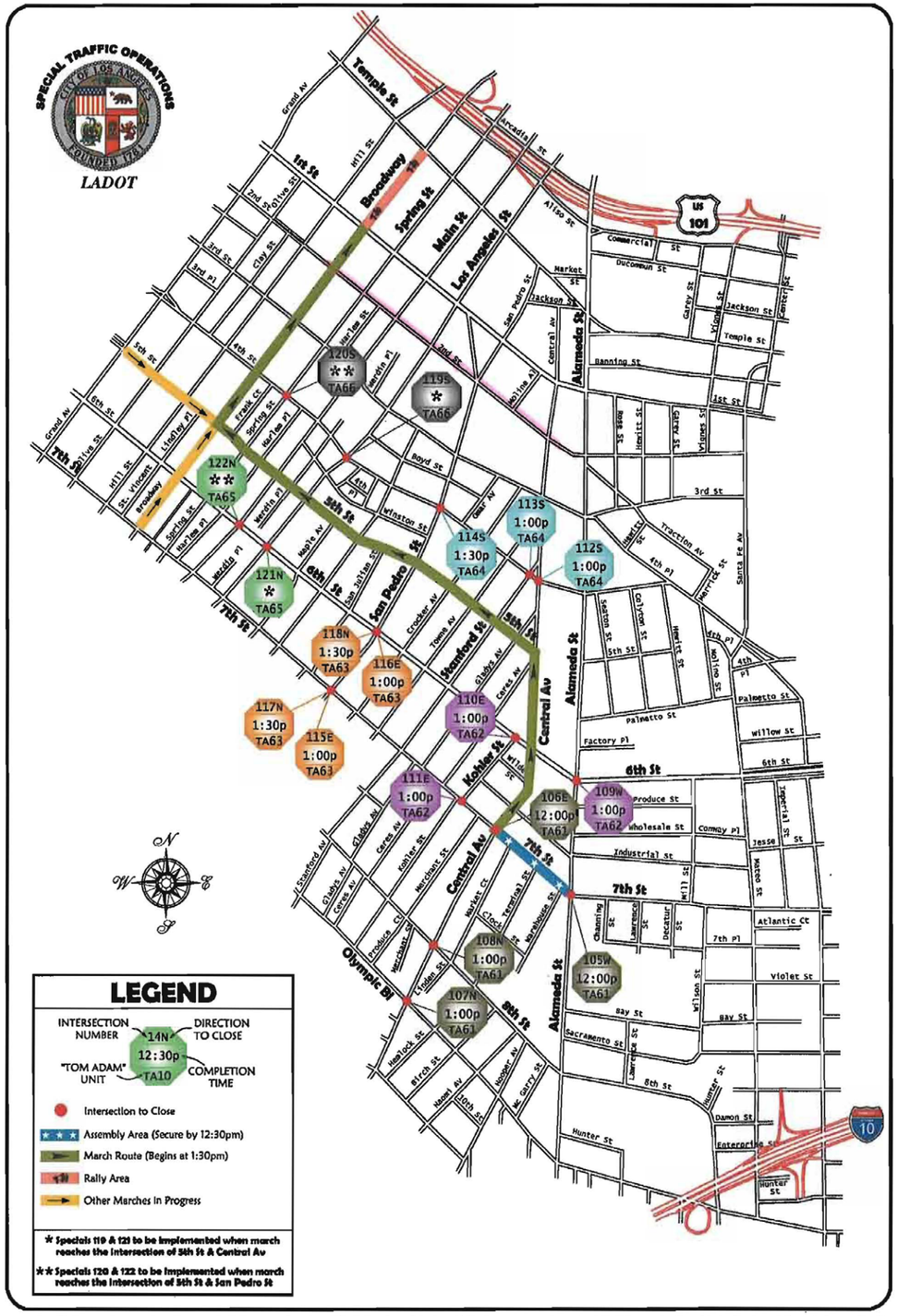
LEGEND
- Assembly Area 1
- Assembly Area 2
- March Route 1
- March Route 2
- Rally Area

CATEGORY:
A - Assembly Area
R - Route
C - Contingency
E - Emergency
- Rally Area

R
1:15pm-2:30pm
10:00am-3:00pm

ESTIMATED CLOSURE & RE-OPENING TIME
* IF EVENT STARTS ON TIME AND CROWD IS 30,000 OR LESS

ESTIMATED CLOSURE & RE-OPENING TIME
* IF EVENT DOES NOT START ON TIME AND/ OR CROWD EXCEEDS 30,000



TRANSPORTATION MANAGEMENT PLAN **2008**

LEGALIZE L.A. DEMONSTRATION MARCH AND RALLY

TMP

6-29-07 - This day's Council session - Motion - Perry Mover 2007 / Garcetti - The Nisei Week Foundation is sponsoring the 67th Annual Festival during the week of August 18-26, 2007 in Little Tokyo. This oldest ethnic celebration in the country is a major event for the Japanese American community, and draws a large crowd from all over the City. The event will include a Nisei Week Grand Parade, Ondo Street Dancing, Street Arts Festival, Taiko Gathering, Car Show, and the 12th Annual Tofu Festival, and many art and cultural exhibits and demonstrations. Nisei Week, a non-profit corporation made up of volunteers from the community, is requesting City assistance in closing selected streets in the Little Tokyo area, providing traffic control, cleaning the streets, and using City parking lots during the Festival. Approval of this request will mean that an estimated $4,700 in fees and salary costs will be absorbed by the City. (Contact: Commander Terry Hara: 213/687-7193 fax 213/687-6510).

THEREFORE MOVE that the 2007 Nisei Week celebration, sponsored by the Nisei Week Japanese Festival, be declared a Special Event, and the involved City departments (and any unforeseen City agencies that may be involved) be requested to waive all fees, costs, and requirements, except insurance.

FURTHER MOVE that pursuant to Ordinance No. 150567 relating to temporary street closures, the following be made, subject to the supervision of the Director of the Bureau of Street Services:

Friday, August 17, 2007, 9:00 a.m. to Monday, August 20, 2007 12:30 p.m., for the Tofu Festival:

- San Pedro Street between First and Third Streets

Saturday, August 18, 2007, between 6:00 a.m. to Monday, August 20, 2007, 12:30 p.m., for the Tofu Festival:
* Second Street between Los Angeles Street and Central Avenue
* Astronaut Ellison Onizuka Street between First and Second Streets

Sunday, August 19, 2007, 2:00 p.m. to 10:00 p.m. for the Nisei Week Grand Parade:
* Astronaut Ellison Onizuka Street between First and Second Streets
* First Street between Alameda and Los Angeles Streets
* Los Angeles Street between First and Second Streets
* Second Street between Alameda and Los Angeles Streets
* Central Avenue between First and Fourth Streets
* Third Street between Alameda and San Pedro Streets
* San Pedro Street between Second and Third Streets

Friday, August 24, 2007 9:00 a.m. to Monday, August 27, 2007, 2:30 p.m., for the Street Arts Festival:
* San Pedro Street, between Second and Third Streets.

Sunday, August 26, 2007, 11:00 a.m. to 8:00 p.m., for Obon Street Dancing and Closing Ceremony:

- First Street, between Alameda and San Pedro Streets.

FURTHER MOVE that the Bureau of Street Services be directed to: (1) sweep the affected streets after the Tofu Festival, Parade, Street Arts, and Obon Street Dancing; (2) provide push brooms, trash cans and liner; and (3) furnish the necessary traffic control devices barricades, cones, and flashers for the street closures. Traffic control devices will be provided with the understanding that Nisei Week will pick-up and return them to the Bureau of Street Services.

FURTHER MOVE that the Police Commission be requested to issue a no-fee Special Event Permit Application for the Nisei Week Grand Parade, Car Show, and Street Arts Festival.

FURTHER MOVE that the Department of Transportation be directed to post "Temporary No Parking" signs with appropriate times and date designations on the affected streets and provide traffic control personnel and traffic cones, as required, and assist in closing the streets for the various events.

FURTHER MOVE that the Department of Transportation allow its Parking Lots A, B, C, Mangrove Lot A1753 (located at 414 E Temple Street) be used for the Car Show from Friday, August 17, 2007 at 6:00 p.m. to Saturday, August 18, 2007 at 10:00 p.m.; and allow its Cathedral Place Lot D1755 (located at 237 S Los Angeles Street) be used all day for the Tofu Festival, on Saturday and Sunday, August 18 and 19, 2007.

FURTHER MOVE that Department of General Services allow the employee parking Lot No. 7 located on Judge John Aiso Street, south of Temple Street be used by Nisei Week Festival participants, all day, Saturday and Sunday, August 18 and 19, 2007, and again on Saturday and Sunday, August 25 and 26, 2007; and allow the City Hall East parking P-3 and P-4 be used all day on Saturday and Sunday, August 18 and 19, 2007 and again Saturday and Sunday, August 25 and 26, 2007.
6-29-07 - File to Council and Legislative Processing Clerk for placement on next available Council agenda
7-6-07 - Council Action - Motion ADOPTED
7-13-07 - File in files

From the City Website:
http://cityclerk.lacity.org/lacityclerkconnect/index.cfm?fa=vcfi.dsp_CFMS_Report&rptid=99&cfnumber=05-1327

CDM

TED TOKIO TANAKA ARCHITECTS

IBI GROUP