



# Memorandum

**TO:** TRANSPORTATION AND ENVIRONMENT COMMITTEE

**FROM:** James R. Helmer

**SUBJECT: DOWNTOWN BICYCLE SYSTEM PLANNING**

**DATE:** 10-22-08

Approved

Date

10/22/08

## RECOMMENDATION

1. Accept staff report and analysis on the application of physically-separated bike lanes within San José streets and select Fourth Street from San Fernando Street to San Carlos Street as the preferred location for further study.
2. Direct staff to continue efforts to develop San Fernando Street between Diridon Station and San José State University as a “premier bicycle boulevard” with buffered bike lanes, special pavement markings and bicycle priority at signals, taking into consideration:
  - a. Community feedback associated with potential impacts related to reduced on-street parking; and
  - b. Planned use of San Fernando Street for traffic detours associated with construction of the BART project on Santa Clara Street.
3. Accept the following projects as the City’s key priorities for bikeway improvements in the Downtown area as candidates for near-term transportation grant funding:
  - a. Los Gatos Creek Trail connection from San Carlos Street to Santa Clara Street
  - b. Guadalupe River Trail connection from Grant Street (near 280) to Tamien Station
  - c. Coyote Creek Trail connection from Story Road to Williams Street
  - d. San Fernando Street bike lanes from Diridon Station to Guadalupe River
  - e. San Fernando Street bikeway from 9<sup>th</sup> Street to 17<sup>th</sup> Street
  - f. San Antonio Street bikeway from 17<sup>th</sup> Street to King Road
  - g. Park Avenue bikeway from Race Street to Market Street
  - h. Seventh Street bikeway from Julian Street to Jackson Street
4. Address the City’s policy direction for Downtown bicycle transportation by referring to the General Plan update process the policy question of transportation mode priorities for Downtown San José and consider “world class” best practice approaches related to bicycle transportation implemented by leading national cities such as Portland, San Francisco, and Chicago, and leading international cities such as Copenhagen, Amsterdam, and Bogota.

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5. Incorporate assessment of other proposed Downtown bicycle system improvements, such as bike parking, "bike valet" program, "bike share" program, and bike safety education, with planned report on Citywide Bicycle Master Plan Update proposed for Transportation and Environment Committee review in early 2009.

## **BACKGROUND**

In a memorandum to the Rules Committee dated August 20, 2008, Mayor Reed and Councilmembers Liccardo and Williams directed staff to report to the Transportation and Environment (T&E) Committee on various proposals to enhance bicycle travel in Downtown San José. A particular goal was to consider the feasibility of a physically-separated bike lane project for near-term grant funding opportunities.

At the Rules Committee meeting on August 27, 2008, the Rules Committee, Councilmember Liccardo and Department of Transportation staff agreed to focus on the topic of physically-separated bike lanes at the November meeting of the T&E Committee. Other issues raised in the August 20<sup>th</sup> memorandum related to bike parking, "bike valet" program, "bike share" program, and bike safety education, would be addressed with the T&E Committee as part of a planned report on the Citywide Bicycle Master Plan Update proposed for early 2009.

The following analysis provides a summary of staff's research and assessment of physically-separated bike lanes, the potential for application in San José, as well as other considerations focused on enhancing bicycle travel in the Downtown San José area, the identification of project priorities for future grant funding, and general Downtown transportation planning policy issues. Staff will be available at the T&E Committee meeting to discuss this topic further with the Committee.

## **ANALYSIS**

### **Assessment of Physically-Separated Bike Lanes ("Cycle Tracks")**

The concept of on-street physically-separated bike lanes has recently gained attention as a result of New York City being the first American city to implement such a project. A test installation of the project was implemented in October 2007. The concept involves locating an on-street bike lane next to the street curb, and then buffering the bike lane from traffic by a physical barrier and on-street parking. A photo of the New York City project is shown in Figure 1 (attached). The design concept is used in bike-friendly cities like Copenhagen and Amsterdam and is also referred to as a "cycle track".

Based on information available on the internet about the New York City project (plus two more planned projects in New York City) and safety studies conducted in Copenhagen, staff has developed a good understanding of the concept and appropriate applications. For the Downtown

San José area, staff focused on a potential application along San Fernando Street to connect the Diridon Station area with the Guadalupe River trail, the Downtown core, and San José State University. Staff's conclusion is that the cycle track concept does not appear feasible in the San Fernando corridor for the reasons noted below.

- *Safety Concerns with Turning Movements and Bus Stops*

A Copenhagen study on the safety of cycle tracks shows many safety advantages for separate bike lanes compared to standard on-street bike lanes; however, it does point out significant concerns relative to increased crashes between bicycles and turning vehicles due to blocked visibility from parked cars. For this reason, recommended design standards include restricting on-street parking for approximately 100 feet (typically 4 parking spaces) in advance of intersections and driveways. Another safety concern relates to potential conflicts with bus passengers having to cross the cycle track to travel between the bus stop and the sidewalk.

The cycle track projects in New York City (and those known of in Copenhagen) are all along one-way streets and typically have long blocks and no driveway cuts. Transit stops are located on the opposite side of the street from the cycle track. On a one-way street network, conflicting turn movements occur only every other block. In New York City, they have determined that cycle tracks should not be considered on streets with more than 8 turning conflicts per mile. Also, they point out that "ideal streets" for cycle tracks are in older neighborhoods developed before automobiles, due to the lack of driveways. The safety focus of this design criterion is supported by other studies which have found that 83% of car-bike collisions involve turning movements at driveways and intersections.

Installing a "cycle track" is not recommended on San Fernando Street due to the two-way street operations, bus conflicts, and a high number of driveways and intersections. For the half-mile "core segment" of San Fernando Street from Almaden Boulevard to Fourth Street there are 12 intersections and driveways (or on average 24 turning movement conflict points per mile) – three times higher than the maximum recommended by New York City.

- *Insufficient Space within the Street*

The cycle tracks in New York City all are developed by eliminating a lane of traffic. This is due to the need for a wider bike lane for the cycle track and space for a physical barrier between the cycle track and parked cars. A standard on-street bike lane is 5 or 6 feet. A cycle track lane is 10 feet wide in order to accommodate occasional curb side access by street sweepers and emergency vehicles. The street width of San Fernando Street is not sufficient to accommodate the necessary dimensions for a cycle track, a separation barrier, on-street parking and one-lane for traffic in each direction.

In general, the key feature of the cycle track concept is to have bike lanes physically separated from vehicles with on-street parking used as a physical buffer. This concept is difficult to apply

safely in San José due to the historic auto-orientation of San José street design and land use. Nevertheless, as discussed below, there are several other bike-friendly design options that can be applied to Downtown, as well as other Citywide locations.

Lastly, in staff's opinion, the one area in Downtown that does have some potential for the cycle track concept is along Fourth Street between Julian Street and San José State University. The best segment for further near-term consideration is the portion of Fourth Street between San Fernando Street and San Carlos Street, at the frontage of San José State University. The preliminary design concept involves creating a two-way separated bike lane and reduces vehicle lanes on Fourth Street from 4 to 3. The main function of the cycle track would be to connect the San Fernando bikeway to the San Carlos Street pedestrian mall at the center of San José State University. Staff recommends selecting Fourth Street (San Fernando to San Carlos) as a preferred location for further study of the cycle track concept.

#### Other Bike-Friendly Design Options

In addition to cycle tracks, there are many other innovative bicycle facility design treatments being developed that are geared toward making bicycling safer, more convenient, and ultimately a more widely used travel mode. These bike-friendly design options are outlined below.

- Eliminate On-Street Parking – Avoids risk and concerns of bicyclists about conflicts with opening doors (“dooring”) from parked cars.
- Buffered Bike Lanes – Provides a 3-foot (or greater) painted buffer between edge of bike lane and vehicle travel lane. The buffer area can also include raised devices such as curbs, bollards, and flexible plastic delineators. Buffered bike lanes are increasingly being used by major urban cities such as New York City and San Francisco, where bike lanes are located on high-volume, high-speed streets.
- Widened Sidewalks with Shared-Use or Delineated Bikeways – Provides a wide sidewalk area that allows for shared use by pedestrians and bicyclists (like a trail) or has a delineated area for bicycles. This approach is common in Copenhagen and Amsterdam.
- Colored Bike Lanes – Provides a colored pavement area within the bike lane to increase awareness and caution from motorists of on-street travel by bicyclists. Several cities have been officially authorized (by State and Federal agencies) to test and study the effectiveness of colored bike lanes, including Portland, San Francisco, Chicago and New York City.
- Bicycle Signal Priority – Provides bicycle detection and priority at traffic signals to increase bicycle travel time through a corridor.

Concept of San Fernando Street as Downtown's "Premier Bicycle Boulevard"

For Downtown San José, the most significant on-street corridor for bicycle travel is San Fernando Street. This street has relatively low traffic volumes and speeds, and has excellent connectivity between major Downtown area attractions and transportation facilities such as the Diridon Transit Station, Los Gatos Creek Trail (planned), Guadalupe River Trail, Chavez Plaza, Transit Mall, San José State University, City Hall, and further east to the planned Coyote Creek Trail. San Fernando Street is uniquely situated to function as a "bicycle boulevard" that connects the City's three major creek trail corridors (Guadalupe, Los Gatos, and Coyote) to Downtown area destinations.

The City's Bicycle and Pedestrian Advisory Committee (BPAC) is advocating for greater bike-friendly design treatments (beyond the current bike lanes) in the San Fernando Street corridor to enhance the safety, function, and use for bicyclists. City Department of Transportation (DOT) staff supports BPAC's general direction and supports considering the following design treatments to convert San Fernando Street into Downtown's "premier bicycle boulevard":

- Eliminate or reduce on-street parking to avoid "dooring" conflicts with parked cars
- Install buffers between bike lanes and vehicle lanes to improve bicyclist comfort and safety
- Color bike lanes to increase awareness and priority for bike travel
- Implement bike detection and bike priority features at traffic signals

There are, however, several issues that need further review relative to developing an improved bike plan for San Fernando Street. First, many Downtown stakeholders are sensitive to the availability of on-street parking and coordination with these stakeholders is needed. Secondly, and most significantly, is that San Fernando Street is planned to serve as a primary detour route for Downtown traffic circulation resulting from construction of the BART project on Santa Clara Street (between San Pedro Street and Third Street). It is expected that a special operations plan for San Fernando Street will be implemented for bus, bike and vehicle travel for the duration of BART construction. The schedule for Downtown BART construction is anticipated to occur between 2010 and 2016, but is subject to the results of the November ballot measure addressing BART project funding.

It is recommended that the Committee provide input to staff on the policy direction for development of San Fernando Street as a "premier bicycle boulevard" for Downtown, recognizing the need for further coordination related to stakeholder interests and BART construction.

### Recommended Downtown Bikeway Projects for Near-Term Transportation Grant Funding

The August 20<sup>th</sup> memorandum from Mayor Reed and Councilmembers Liccardo and Williams states an objective of identifying priority bicycle transportation projects in the Downtown area for future grant funding, including grant programs managed by the Santa Clara Valley Transportation Authority (VTA) as part of their Bicycle Expenditure Plan (BEP). Based on prior City Council action from September 2006, the current San José priorities for transportation grant funding for bicycle facility improvements include the development of bike trails along the Guadalupe River, Los Gatos Creek, Coyote Creek, the Bay Trail, the Blossom Hill/Monterey/UPRR Overcrossing, and the Almaden Expressway Overcrossing (at Guadalupe Creek trail). Over the past few years, all of these projects have received funding grants for project development including master planning, environmental clearance and design. Also, construction funding has been allocated for the Blossom Hill/Monterey Overcrossing and the Guadalupe River Trail (880 to Montague).

Staff recommends that the City “stay the course” with current transportation grant priorities due to the project merits and “state of readiness” which are key competitive factors for securing grant funding. For the Downtown area, staff recommends the following trail projects as the highest priorities for bicycle system transportation grants:

- Los Gatos Creek Trail connection from San Carlos Street to Santa Clara Street
- Guadalupe River Trail connection from Grant Street (near 280) to Tamien Station area
- Coyote Creek Trail connection from Story Road to Williams Street

Staff finds that better connecting the Downtown area with the creek trail system offers the best near-term improvement opportunity for enhancing bicycle commuting to Downtown. The recent survey of usage along the trail system points out the bicycle transportation significance of the system and the benefit of new trail extensions: 65% of the trail users are on bikes, 58% of trail users are commuters, and Guadalupe River trail use at Coleman Avenue increased by 87% over last year.

Staff also recommends a series of “basic” on-street bike lane improvements to enhance connections to the Downtown area from East San José (along San Fernando Street and San Antonio Street), from the Rose Garden area (along Park Avenue), and from the Japantown area (along Seventh Street), as more specifically listed below. These local street bike lane projects are generally not competitive for major regional grant programs, but are more ideally suited for funding from the City’s allocation of discretionary State TDA3 grants. These funds are allocated to projects by the City Council annually in April of each year.

- San Fernando Street bike lanes from Diridon Station to Guadalupe River
- San Fernando Street bikeway from 9<sup>th</sup> Street to 17<sup>th</sup> Street
- San Antonio Street bikeway from 17<sup>th</sup> Street to King Road
- Park Avenue bikeway from Race Street to Market Street
- Seventh Street bikeway from Julian Street to Jackson Street

### San José Policy Goals for Bicycle Transportation

The August 20<sup>th</sup> memorandum from Mayor Reed and Councilmembers Liccardo and Williams, clearly articulates opportunities and goals for San José to improve on the use of bicycling for commute travel and advocates for investment in improved facilities focused in the Downtown area. Some general perspectives from the memo include:

- Commuting by bicycling brings widespread benefits for air quality, carbon emissions, public health, fiscal savings and community well-being.
- San José residents commute to work by bike at a rate (less than 1%), well behind nearby towns like Palo Alto (6%) and Mountain View (3.4%), far behind “big city” leader Portland (3.5%), and substantially behind international leaders like Copenhagen (36%).
- As a relatively flat city with 300 days of sun a year, San José appears well situated to become a model bicycling-friendly city in the United States.
- Downtown San José is an ideal starting point for improved bike facilities as it includes the City’s largest university (San José State), the busiest transit centers (Diridon Station and Transit Mall), the City’s highest density job and housing locations, and proximity to the Guadalupe River trail.

Staff concurs with these perspectives on the positive potential for San José as a leading bicycling city and on the merits of focusing near-term investment in the Downtown area, and particularly with an aim toward completing a “basic network” of interconnected trails and on-street bikeways. Further, staff recommends that the Council set specific policy direction on bicycle transportation mode share goals. The best forum to address this would be as part of the current General Plan update process.

Clearly, the success that other cities are having related to bicycle transportation is based on long-standing policy, investment, and cultural priorities oriented towards favoring bicycle travel and discouraging automobile use. For some insights on the perspectives on the world’s leading bicycle friendly cities (Copenhagen, Amsterdam, and Bogota), the following internet video is recommended for viewing: “YouTube – Cycling Friendly Cities”, <http://www.youtube.com/watch?v=5rwwxrWHBB8&feature=related>. Other American cities that are considered leaders in bicycle transportation include: Portland, San Francisco, and Chicago.

### Update on Other Ongoing Bicycle Planning Efforts

Several efforts are current ongoing that support development of an improved bicycle transportation system in the Downtown area as noted below.

- *Downtown Small Wonders Program* – The updated workplan for the Downtown Small Wonders program includes the “Downtown Bicycle Demonstration Programs” and is focused on considering separated bike lanes, more bike parking, a special event bike valet program, public bike fleet, and a community bike ride. The updated workplan was reviewed and accepted by the Community and Economic Development Committee on September 22<sup>nd</sup>. A City staff committee has been formed to guide implementation efforts, including a review of the findings and recommendations contained in this staff report. A key near-term priority the group is focusing on is the development of a Downtown special event bike parking program for implementation in 2009.
- *“Bike Share” Program at Diridon Station* – On September 29<sup>th</sup>, the Silicon Valley Bicycle Coalition hosted a meeting with local and regional stakeholders to discuss developing a bike share program at various Caltrain stations including the Diridon Station. San José Councilmember Liccardo and Palo Alto Councilmember Kishimoto participated in the meeting. VTA staff agreed to take the lead on further program development, including an analysis of bike share programs implemented by other cities.
- *Bike Rack Grant Funding* – The Department of Transportation has current grant funding for the installation of bike racks at Citywide locations. Many locations have been identified for new racks in the Downtown area and are planned to be installed during this fiscal year.

## **PUBLIC OUTREACH**

On October 20, 2008, staff presented and reviewed the general scope of this report with the City’s Bicycle and Pedestrian Advisory Committee.

## **COORDINATION**

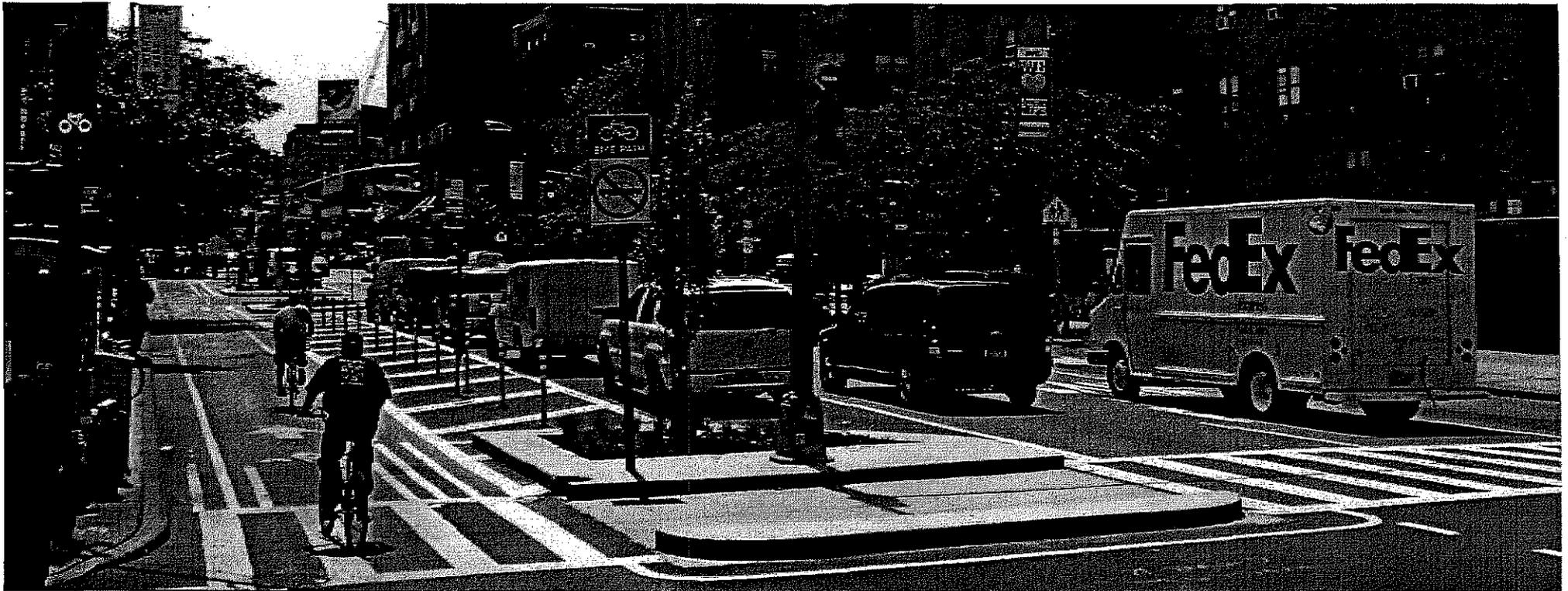
Preparation of this report has been coordinated with staff from Parks, Recreation and Neighborhood Services; Planning, Building and Code Enforcement; Environmental Services; Economic Development; Redevelopment Agency; and City Attorney’s Office.

JAMES R. HELMER  
Director of Transportation

Attachment

For questions please contact Hans Larsen, Deputy Director, at 535-3835.

## Example of Physically Separated Bike Lane 9<sup>th</sup> Avenue, New York City



**Note: Project was completed in October 2007 by modifying a one-way street with four lanes.**