CHAPTER

3

The Green Connections Network

3.1 INTRODUCTION

A Green Connection is a special street or path that connects people to parks and open spaces and enhances the ecology of the street environment: routes are intended to improve access to parks for both people and wildlife. The three project goals (elaborated in Chapter 1) support this concept: 1) Public Health: Increase active transportation to parks; 2) Sustainability: Enhance urban ecology; and, 3) Livability: Support neighborhood stewardship and placemaking.

The ultimate intention of Green Connections is that people go out of their way to travel on routes because they are comfortable, attractive and convenient. The routes within the network build on ideas generated through the community planning process as well as existing and purposed projects related to active transportation, open space and sustainability.

This chapter describes how the Green Connections network was developed, including the inputs that were considered, the criteria used to select street segments, and how the network was refined in response to data inputs and stakeholder feedback.

3.2 NETWORK CONSIDERATIONS

This section describes the inputs that went into developing a network of Green Connections; the streets that are used for walking and biking; the parks and other destinations to which people will connect to; the streets that are best suited to incorporate natural systems and habitat; and existing and proposed projects.

Corridors/Paths/Movement: Routes People Take

This map shows the City's systems for pedestrians and bicyclists (bike routes, key walking streets, trails and pedestrian staircases), as well as streets identified in the San Francisco Better Streets Plan as having characteristics related to access to green space (park-edge streets, greenways and alleys). This map illustrates the synergies between walking and biking routes and the open space system.

Nodes/Places/Destinations: Where People Go

This map shows places where people congregate to work, shop, learn and play. A guiding principle in developing the network was that routes should start and end at a park. Understanding the locations of where people gather City informed the routes that were ultimately selected.

Ensuring that travel between parks, schools, shopping districts, transit centers and employment centers is comfortable and convenient is critical for getting people to parks. In particular, we looked at the location of schools, both to indicate where children were more likely to travel, as well as opportunities for stewardship and education.

Stormwater & Slopes: Integrating Natural Systems

San Francisco's topography orients people within the city, delineates neighborhood boundaries, and helps define watersheds, micro-climates, and habitats. The city's topography and water systems informed which streets might be well suited to become Green Connections.

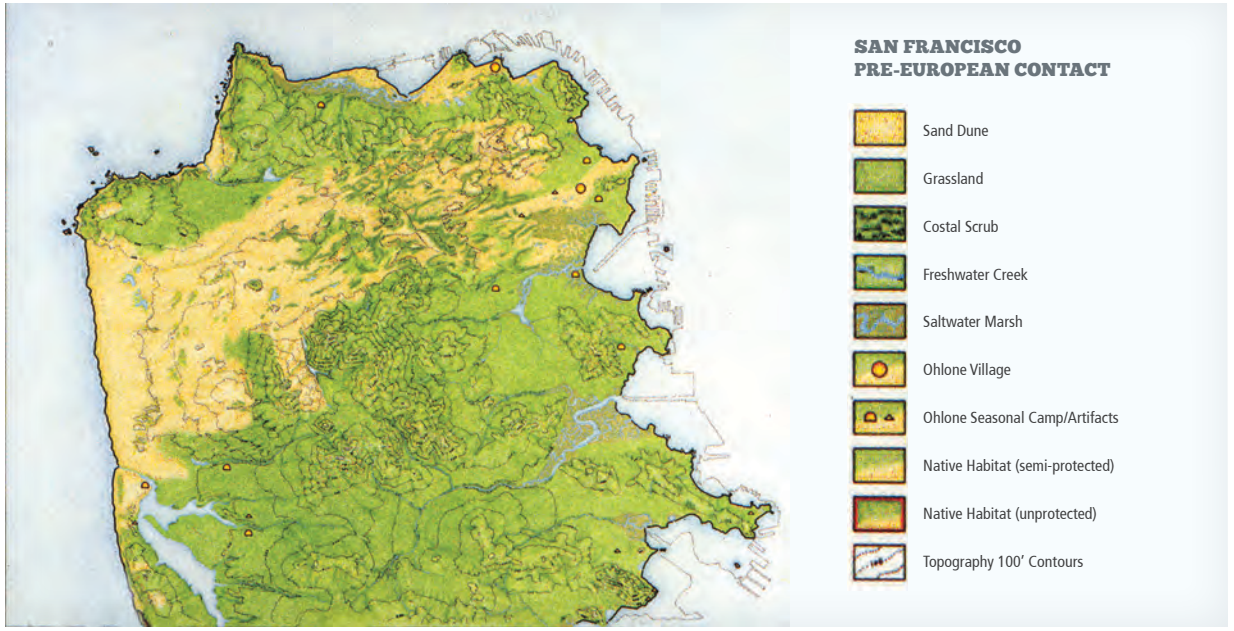
San Francisco's hills present opportunities and constraints in designing a network of Green Connections. Many of the city's largest parks like Twin Peaks and Bernal Heights sit atop hills and offer views of the city and region. In some of the City's steepest areas, staircases facilitate access to important open spaces. Depending on preference and ability, steep streets can be challenging to navigate when walking or biking.

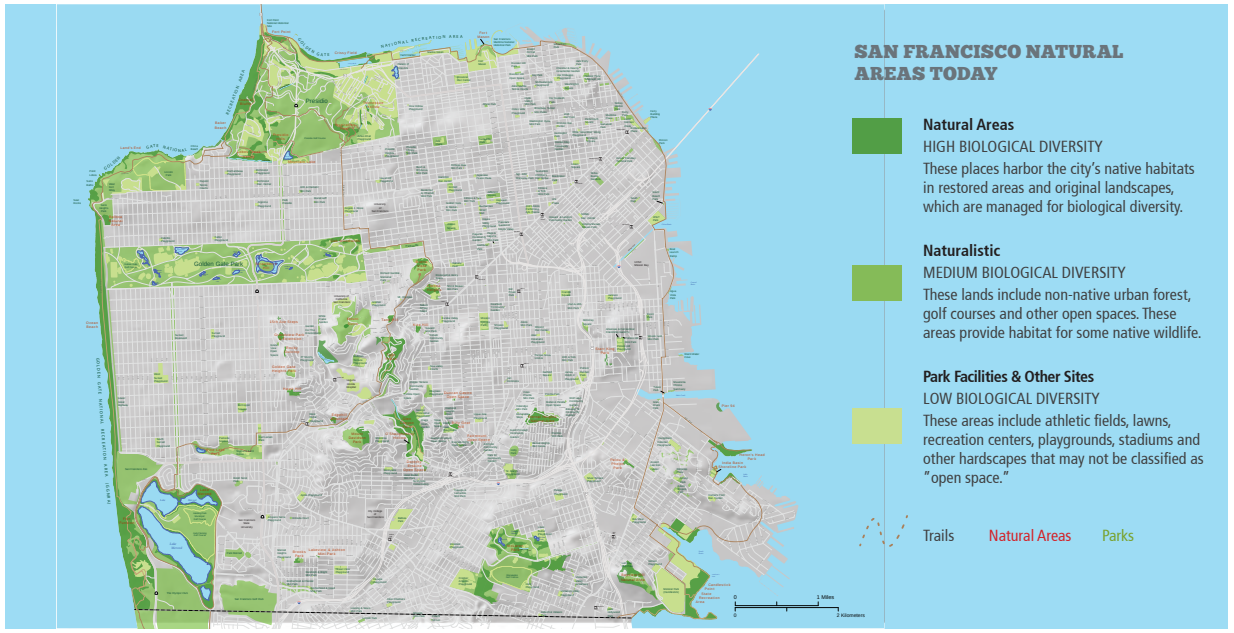
Slopes also impact stormwater design opportunities, as steeper streets are less ideal for effective stormwater management. Since water naturally takes the most direct route to the Bay or Ocean, many key biking and walking streets (the flattest routes) are also former creeks. Relatively flat streets could be good candidates for Green Connections because of the potential to integrate stormwater design features.

Historic Landscapes/Natural Areas: Enhancing Habitat

While the San Francisco peninsula has changed dramatically over the past 200 years, the City still maintains a strong relationship with the regional landscape. Many streets offer panoramic views to water and green spaces.

The City's diverse open space system provides habitat for native plants and wildlife. Enhancing habitat for plants and animals was a major consideration in developing the Green Connections network. This could be achieved by identifying target species and creating habitat "corridors" or habitat "patches," as well as selecting plant species appropriate to the landscape and climate for streetscape plantings. Understanding the area's natural history was formative in identifying potential network routes and outcomes.; Particularly the network follows historic creeks whenever possible.





Building on Existing and Proposed Projects

Another consideration in developing the network was a number of existing and proposed projects. These present an opportunity to examine possible synergies with project goals. Existing and planned trail networks (including the Ridge Trail, Coastal Trail, Bay Trail and Blue Greenway) were considered in developing the network, as well as community generated ideas for ecological stewardship and bicycle improvements. The following projects, which aim to improve connectivity around the City, for people as well as wildlife, were taken into consideration in developing the Green Connections network.

Bay Trail. The Bay Trail is a planned 500-mile trail that will encircle the entire San Francisco Bay, connecting the shoreline of 9 counties and 47 cities. Roughly 60% of the trail is already complete.
For more information *http://www.baytrail.org*

Blue Greenway. The Blue Greenway is a 13-mile corridor along San Francisco's Southeastern Waterfront that follows the alignment of the Bay Trail, from Mission Creek to the City's southern border. The Blue Greenway connects existing open spaces to create a new recreation opportunity and improved access to the waterfront. Through an extensive community process, the Port of San Francisco developed the Blue Greenway Planning and Design Guidelines. A Green Connection route along this historically industrial section of this city will help ensure accessible recreational spaces in this area.
For more information *http://www.sfport.com/bluegreenway*

Coastal Trail. The California Coastal Trail is a network of trails for walkers, bikers, equestrians, wheelchair riders and others along the entire 1,200 miles of the California coast. The 10.5 mile portion of the trail through San Francisco connects many scenic and tourist attractions along the coastline, including the Golden Gate Bridge, the Presidio, Ocean Beach and Fort Funston. While the current trail is relatively complete, there are a number of improvements necessary to ensure that the trail is accessible and visible for the entire Coastal Trail route.
For more information *www.californiacoastaltrail.info/*

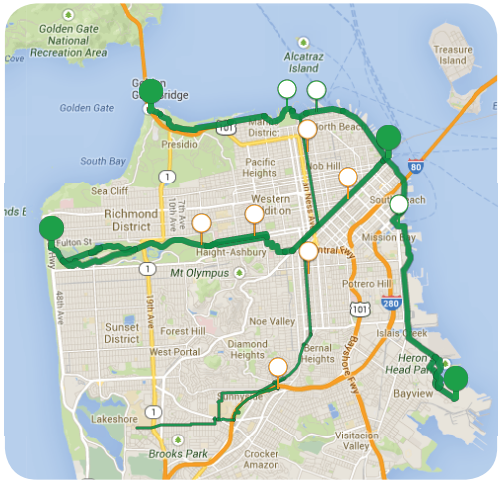
Connecting the City. Connecting the City is a proposal by the San Francisco Bicycle Coalition that envisions 100 miles of crosstown bike routes by 2020 designed for everyone, from an eight-year-old child to an eighty-year-old grandmother. This vision is defined by three routes that connect major institutions, residential neighborhoods and open spaces.
For more information *http://www.connectingthecity.org*

Cross-Town Trail. The idea for a cross-town trail came from an outreach effort led by the Mayor's Open Space Task Force beginning in 2007. This trail is envisioned as a corridor that connects wildlife and people through a series of open spaces and natural areas from the Presidio to Candlestick Point. As the City works with the pertinent Federal, State, local agencies and the community to develop this trail corridor, the Green Connections route can be updated

Green Hairstreak Project. The Green Hairstreak is a project of Nature in the City to connect two butterfly populations with street level plantings of host and nectar sources along the Green Hairstreak Corridor. The Green Hairstreak (Callophrys dumetorum) is a small, nickel-sized butterfly that can be found in three habitats within the city: Hawk Hill and Rocky Outcrop in the Sunset District and the coastal bluffs of the Presidio. The Green Hairstreak corridor is located in the Sunset District and connects Grand View Park and Golden Gate Heights Park.
For more information *http://natureinthecity.org*

The Ridge Trail. The Bay Area Ridge Trail is a multi-use trail that links the hills and ridges of the nine counties of the Bay Area. It will be approximately 550 miles when completed. The 13.5-mile portion of the trail in San Francisco was completed almost 20 years ago and is in the process of being reevaluated by the Bay Area Ridge Trail Council, with the goal of improving its route, signage and connections to other city and regional trails.
For more information *http://www.ridgetrail.org*

Clockwise from below:
Connecting the City Map, San Francisco Bicycle Coalition
Green Hairstreak Corridor, Nature in the City
Regional Trails Map, San Francisco Planning Department



3.3 ROUTE CONSIDERATIONS

The previous section describes the work done to outline citywide network patterns: how people walk and bike around the city, where people like to gather, the opportunities to integrate natural features and enhance local habitat and existing and proposed projects. The next step was to understand the specific qualities of a Green Connection street that would achieve the project goals.

» Public Health: Increase active transportation to parks

» Sustainability: Enhance urban ecology

» Livability: Support neighborhood stewardship and placemaking

The streets that best meet the project goals are predominately residential, with the exception of the northeast quadrant of the City where the character of the streets and land uses is more intensive. Selecting streets that are calmer and have a more residential character ensures a minimal impact on existing transit service and freight movements, while making implementation of the network easier (since only modest improvements may be needed). Because they have fewer spatial constraints, residential streets also provide greater opportunities for repurposing street space to promote pedestrian and bicycle improvements.

This section reviews street qualities that were taken into consideration in developing the Green Connections routes.

Building on Opportunities

Streets that currently exhibit some characteristics of Green Connections require lower investment to realize project goals and may have fewer trade-offs.

Streets with slow moving traffic. Streets with slow moving traffic are good candidates for Green Connections, as pedestrians and bicyclists often feel safer and more comfortable on streets with calmed traffic.

Streets with low traffic volumes. Similarly, streets with low traffic volumes can provide additional space for pedestrians and bicyclists while having minimal impacts on traffic flow.

Residential Streets (as defined by the Better Streets Plan). Residential streets often have fewer traffic lanes and slower moving vehicles.

Streets near schools. Many streets near schools have lower vehicle speeds, as the City recently implemented 15 mph zones near schools. Connecting schools to parks increases safe access & physical activity for kids, as well as an opportunity for education and stewardship.

Streets with space to gather and play. Opportunities to gather, play and learn can build community and contribute to a sense of place. Many streets in the city have excess width that can be repurposed for gathering spaces, pedestrian and bicycle facilities, and ecological features like greening and stormwater infrastructure.

Streets that are part of the existing bicycle network. The streets in the City's bicycle network are generally flat and have some degree of existing bicycle amenities. Most of these streets are already being used by bicycles and have been identified as candidates for ongoing improvements.

Streets that create an opportunity for stormwater management. Flatter streets are good candidates for low impact design treatments that reduce stormwater runoff. Additional coordination with the SFPUC to ensure that the design of these streets maximizes opportunities for stormwater management.

Street Slope. Slopes greater than 10% were generally avoided to facilitate easy walking and bicycling; however, some excellent walking opportunities, such as staircases, have a slope greater than 10% and were included in the network

Streets that overlap with historic creeks. Daylighting historic creeks and watersheds offers significant opportunities for habitat creation, green stormwater management and education about urban watersheds, thus building ecoliteracy.

Avoiding Conflicts

Generally, streets that serve heavy volumes of cars, transit vehicles and trucks provide fewer opportunities for extensive pedestrian and bicycle amenities. In developing the Green Connections network, streets with the following features were typically avoided; however, other city programs will continue to invest in important pedestrian and bicycle safety measures on these streets.

Truck routes. The City has identified truck routes that generally have a wider right-of-way to accommodate freight and goods movement. These street conditions also encourage vehicles to travel at faster speeds.

High volume streets. Streets with high volumes of traffic can be less pleasant to walk or bike on due to noise, increased risk of conflicts with vehicles and longer wait times at traffic signals. Also high volume streets may have constraints making it more difficult to reclaim space for pedestrian amenities like sidewalk widening, curb extensions and medians. With higher volumes, potential pedestrian and bicycle conflicts with vehicles is higher.

Streets with fast moving traffic. Some streets in the city are designated as major arterials, with higher traffic volumes that would limit the potential for Green Connections enhancements, as discussed above.

Overlap with the MUNI Rapid Network (Key Muni routes). Many streets in the City host our transit system. To reduce delays for transit on these streets, the city prioritizes keeping traffic moving and may design streets with wider travel lanes for transit and space dedicated to loading and unloading passengers. These transit requirements could compete with the design needs of a Green Connection street, and will have to be addressed on a per case basis.