



**Laguna Honda Hospital and  
Rehabilitation Center**

*a facility of the*

**SAN FRANCISCO  
Department of Public Health**

**Rehabilitation Services Department**



**Recommendations:**

*Tree Allee's  
"ADA-Accessible" Ramp*

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## Introduction

The Tree Allee ramp is a highly visible project leading to what is planned to be a state-of-the-art facility. As this is the sole "accessible" path of travel for mobility-impaired individuals, it is incumbent upon Laguna Honda Hospital and Rehabilitation Center and its Replacement Project to give thoughtful consideration to recommendations made in this report.

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*The Tree Allee ramp is a highly visible project leading to what is planned to be a state-of-the-art facility.*

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This report provides ideal recommendations for the Tree Allee to be built on the upper part of the LHH front lawn, and recommendations to improve work already performed on the path currently under construction on the lower part of the front lawn leading to Laguna Honda Boulevard. To place the recommendations in perspective, the following quotes are of note:

"Just complying with the minimum is not enough."<sup>1</sup>

— Mayor Gavin Newsom

"Buildings ... [and] sidewalks shall meet or **exceed** ADA Accessibility Guidelines (ADAAG) of the ADA."<sup>2</sup>

"Designing to the minimums is not good enough."<sup>3</sup>

Per a conversation with a former Disability Coordinator for the City:

"Access laws clearly read as *minimum* standards. A public entity is held to a very high standard, and is always encouraged to exceed the authoritative codes in order to provide safe and equal access. We should never pass up a chance to build model facilities. The Mayor's Office of Disability's web site says that San Francisco has adopted Title 24 as the City's standard. Any deviation from this standard can only be justified if it provides greater access than the Title 24 codes."<sup>4</sup>

— Paul D. Imperiale

Former Citywide Disability Coordinator under Mayors Art Agnos,  
Frank Jordan, and Willie L. Brown

Former Access Appeals Commissioner (a City Charter Commission)

In planning for the Laguna Honda Hospital and Rehabilitation Center (LHHRC) replacement facility, an ad hoc committee in the Rehabilitation Services Department reviewed the construction of the ADA walk along the Tree Allee.

The San Francisco Mayor's Office on Disability has noted that under the State Building Code, Title 24, regulations make a distinction between a walk and a sidewalk:

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<sup>1</sup> *What Architects and Access Specialists Need to Know: CA Title 24 Access Codes and ADA Conference.* (2006, March 1–2). San Francisco Mayor's Office of Disability PowerPoint Presentation.

<sup>2</sup> Ibid

<sup>3</sup> Ibid

<sup>4</sup> Ibid



"A sidewalk is contiguous to a public way, a walk is not. Walks must comply with ramp requirements where the slope exceeds 1 [foot rise] in 20 [feet of horizontal run]."<sup>5</sup>

Documents issued by the Mayor's Office on Disability notes:

"If the slope of the path of travel exceeds 1:20 then you have a **ramp** [emphasis added]. However it must exceed 1:15 before handrails are required."<sup>6</sup>

The Mayor's Office on Disability also notes:

"When the slope in the direction of travel of any walk exceeds 1 vertical to 20 horizontal (5% gradient) it shall comply with the provisions of Section 2-3307, Pedestrian Ramps."<sup>7</sup>

Although the slope of the proposed walk does not exceed 5%, in the spirit of building beyond the minimum standards, we believe this should be considered a ramp. Because some sections are a ramp, the following design features are required:

- Landings must be provided at the top and bottom of each ramp. The top landing must be 60" x 60"<sup>8</sup>
- Handrails are required on ramps that provide handicap access if [the] slope exceeds 1 foot rise in 15 feet of horizontal run. Handrails shall be placed on each side of each ramp, **shall be continuous the full length of the ramp** [emphasis added], shall be 30-inches to 34-inches above the ramp surface ...<sup>9</sup>
- Where the ramp surface is not bounded by a wall or fence and **the ramp exceeds 10 feet in length** [emphasis added], the ramp shall comply with one of the following requirements: 1. A guide curb a minimum of 2-inches in height shall be **provided at each side** [emphasis added] of the ramp, or; 2. A wheel guide rail shall be provided ... Wheel guides or curbs are needed to protect wheelchair users from the possibility of having a wheel go off the edge of the ramp.<sup>10</sup>
- All walks with continuous gradients shall have level areas at least 5 feet in length at intervals of at least every 400 feet.<sup>11</sup>

## ADA Language

Reference is made to the *ADA Accessibility Guidelines* (ADAAG). Citations in this document refer to language in the ADAAG.

## Testing Constraints

Our testing constraints were limited by our ability to spatially visualize the final product at the top of the staircase, and to conceptualize the entire Tree Allee in its final configuration.

<sup>5</sup> California Title 24, Mayor's Office on Disability. Retrieved October 30, 2006 from [www.sfgov.org/site/sfmod\\_page.asp?id=5757](http://www.sfgov.org/site/sfmod_page.asp?id=5757), p. 6.

<sup>6</sup> Ibid, p. 1.

<sup>7</sup> Ibid, p. 5, Walks and Sidewalks Sec. 2-3325(c) "5 Percent Gradient."

<sup>8</sup> Ibid, p. 2.

<sup>9</sup> Ibid, p. 3.

<sup>10</sup> Ibid, p. 3.

<sup>11</sup> Ibid, p. 6.



## Design Issues

### Staircase

The staircase descending the hill to the Forest Hill MUNI station poses a potential danger to residents and visitors using wheelchairs. Although handrails have been installed on both sides, and in the center, of the staircase, a variety of wheelchairs could easily roll down the steps, endangering the wheelchair occupant.

If it is still legal to do so, we recommend installing poles at the top of the staircase as a safety barrier, as is done on staircases in the main building. The safety poles should be spaced no more than 20" apart between the center handrail and the outer handrail on both sides of the steps; the poles should be at least 27" high for visually impaired people using long canes.

While paragraph 4.9.6 of *Pocket Guide to the ADAAG* indicates that "detectable warnings"<sup>12</sup> at stairs is "reserved" — possibly for further consideration in a future update — we recommend that for people with low vision or visual impairments, that a high contrast 24" detectable warning be placed on the landing at the top of the staircase leading to the Forest Hill MUNI station.

### Safety Curb

We refer to the ramp to the north of the staircase as the North Ramp, and the ramp to the south as the South Ramp.

Our understanding is that there will either be railings or a curb at every section of the ramp where there is a potential for dropping off of an embankment (i.e., a continuous barrier). The only exception to this appears to be the transition between the railing and the curb at the curve of the South Ramp where it runs parallel to the South Road. There appears to be no protective barrier at the landing in this area. We recommend extending either the curb from the upper portion of the ramp or the handrails from the lower portion of the ramp to provide a protective barrier that is continuous.

In addition, to rise above minimum *ADAAG* standards, for people with low vision or visual impairments the safety curbs should be done in a distinct contrasting color to help them distinguish between the flat walking surface and the protective safety curb. If a safety curb is installed on the South Ramp, consider using a distinct contrasting color mixed into the concrete to prevent ongoing upkeep and maintenance of having to paint the safety curbs.



Figure 1

#### Recommendation 1:

*Install poles as safety barriers at the top of the staircase between the center and outer handrail, as is done on staircases in the Main Building. Space safety poles no more than 20" apart.*

#### Recommendation 2:

*Install a high contrast detectable warning strip on the landing at the top of the staircase.*



Figure 2

#### Recommendation 3:

*Extend either the curb from the upper portion of the ramp or the handrails from the lower portion of the ramp to provide a protective barrier that is continuous at the transition between the railing and the curb at the curve of the South Ramp where it runs parallel to the South Road.*

<sup>12</sup>The *ADAAG* no longer allows grooves in concrete as a detectable warning. Instead, it refers to a 24-inch wide strip of raised, truncated domes as a detectable warning. Recently, San Francisco has standardized on installing yellow detectable warnings at curb ramps.



Any future ramps should have safety curbs installed on both sides of, and along the entire length of, the ramp since many wheelchair users propel themselves backwards and may not see hazards before it is too late.

**Ramp Width**

For people with vision impairments or blindness who ambulate with long canes, a human guide, or a guide dog, it would be preferable to have the ramp be 72" wide to accommodate the sweeping motion of long canes and to accommodate another person passing in the opposite direction.

Most, but not all, of the ramp is 72" wide; one section is only 67-1/2"; another section is only 65-1/2" wide (discussed below). A 26-1/2"-standard wheelchair measured from handrim-to-handrim and a 34-1/2" bariatric wheelchair (with the person in it) totals 61" wide, **but excludes measuring the width of hands to propel the chairs**. In areas of the ramp that are 67-1/2" wide, the 61" width of the two wheelchairs theoretically leaves a total of 6-1/2" of space, but does not take into account the width of four hands, or more precisely from elbow to elbow taking into account the abduction of the arms when propelling the wheels. Nor does it take into account bags or backpacks some wheelchair users hang off the sides of their armrests or push handles.

Note the minimal amount of space between the chairs, and the amount of space to the edge of the ramp in Figure 4.

Some electric wheelchairs are almost as wide as the bariatric wheelchair in Figure 4; one electric bariatric wheelchair in use at LHH is 31-1/2" from handrim to handrim.

Another hypothetical case would be a wheelchair like the bariatric one in Figure 4 trying to pass a blind person ambulating with a long cane who is being assisted by a human guide (i.e., a group of three people); the blind person, the human guide, or a guide dog, would be forced to step off of the ramp.

The section of the South Ramp just south of the staircase shown in Figure 5 that has safety curbs on both sides of the ramp measures only 65-1/2" wide. Two wheelchair users passing in opposite directions are going to have difficulty passing each other in this area. Using the two wheelchairs shown in Figure 4 they will be short at least 3-1/2". Only one wheelchair at a time will be able to navigate through this area. It could be hazardous for a wheelchair user to attempt backing up to an area wide enough to permit the two chairs to pass each other.



Figure 3



Figure 4



Figure 5

Item	Width
Standard wheelchair measured rim-to-rim	26-1/2"
Bariatric wheelchair measured rim-to-rim	34-1/2"
Subtotal	61"
Four hands propelling wheels, 2" each hand	8"
	69"
Shortage of passing space	(3-1/2")



If handrails are installed in the section shown in Figure 5 and overhang into the 65-½" pedestrian area of the ramp, they will infringe on the passing space even more.

### Landing Between Top of Staircase and Blended Transition Ramp into Crosswalk

Although construction of the area shown in Figure 6 of the sidewalk is not yet complete, it appears that wheelchair users who use the blended transition to move from the crosswalk crossing West Clarendon Road onto the Tree Allee ramp may not have the required 60" flat landing area clear space in front of the top step of the staircase, as required by paragraph 4.8.4 of the *Pocket Guide to the ADAAG*, since it is only 51" wide.

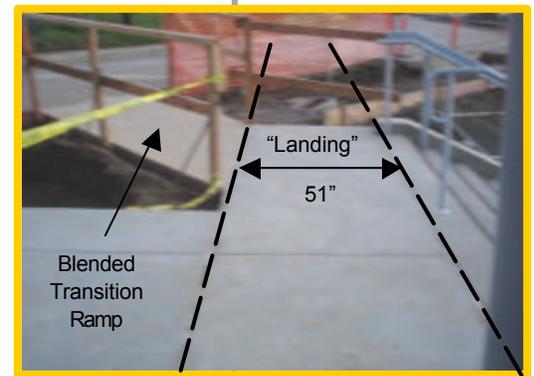


Figure 6

Therefore, we recommend modifying the design to increase the landing at the top of the staircase to 60" wide, shortening the blended transition ramp from West Clarendon Road, as necessary.

We recommend placing a detectable warning surface on both ends of the blended transition ramp.

**Recommendation 4:**  
 Modify the design specs to increase the landing at the top of the staircase to 60" wide, shortening the blended transition ramp from West Clarendon Road, as necessary.

### Lack of Right-of-Way Turnouts and Rest Stop Benches

The *ADAAG* requires that right-of-way passing spaces should be placed every 200 feet for walks and sidewalks less than 60" wide<sup>13</sup>. Paragraph A4.2.1(3) of the *Pocket Guide to the ADAAG* notes that "almost all wheelchair users and those who use walking aids can also manage within this 32-inch width for *short distances* [emphasis added]." The guidelines do not address passing and resting areas for those who are traveling *long distances*; the length of the Tree Allee ramp between the sidewalk at Laguna Honda Boulevard and the end of the ramp before crossing West Clarendon Road is estimated to be 880'. This is a long distance, even for able bodied pedestrians to travel without a place to sit and rest. Therefore, we recommend placing benches (similar in design to those that will be used in the Rehabilitation multi-surface training area) along the Tree Allee ramp every 200', starting at Laguna Honda Boulevard. The benches should not have an overhang that protrudes into the ramp area.



Figure 7

**Recommendation 5:**  
 Place benches (similar in design to those that will be used in the Rehabilitation multi-surface training area) along the Tree Allee ramp every 200'. Consideration should be given to creating — at minimum — three turnout areas along the Tree Allee.

<sup>13</sup> Forty-eight inches is the minimum width needed for an ambulatory person to pass a nonambulatory person or semi-ambulatory person per paragraph A4.2.1(3) of the ADAAG. The section also notes that able bodied people need 32" to clear nearby objects and other pedestrians and that two streams of traffic [passing in opposite directions] can pass in 64".



Consideration should be given to creating — at minimum — three right-of-way turn out areas along the Tree Allee. These should be considered additional right-of-way passing areas/turn outs measuring at least 60" x 78" (in order to perform a U-Turn safely in a right-of-way area off of the walk); they should be completely flat and should include the recommended benches placed off of the ramp and off of the turnout area for people ambulating with the help of a human guide, guide dog, or cane, or simply for people who may need to sit and rest part way up or down the hill. Although not required by code, consider installing a water fountain midway up the hill; this would be a very welcome addition.

**Non-Infringing Handrails Along Tree Allee Ramp**

If the handrails planned for installation on both sides of some sections of the Tree Allee are installed as they are on the staircase, there may be an infringement of up to 15".

As shown in Figure 9, the space between outer edge of the steps and the inner side of the handrail posts measures 4". The space between the inner side of the post to the inner side of the actual handrail adds another 3-1/2" for a total of 7-1/2".

If the handrails are mounted on the surface of the Tree Allee ramp on both sides in the manner they are mounted on the staircase, the 72" width of the ramp will be reduced by 15", leaving only 57" for two wheelchairs to pass one another, which would prove unacceptable because *long sections of the Tree Allee ramp in Figure 8 would not permit two wheelchairs going in opposite directions to pass one another.*

We recommend that mounting the handrails off of the Tree Allee ramp in order to avoid infringement of the 72" "pedestrian area."



Figure 8



4" | 3-1/2" | Figure 9  
7-1/2"

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Recommendation 6:  
*Although not required by code, a water fountain midway would be a very welcome addition.*

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Recommendation 7:  
*Mount handrails off of the Tree Allee ramp in order to avoid infringement of the 72" "pedestrian area."*

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**Low Vision Concerns**

We are concerned about safety for LHH residents, staff, and visitors who have low vision or other visual impairments at the top of the staircase leading down the hill to the Forest Hill MUNI station. As shown in the insets accompanying Figure 10 taken with low vision simulators, people with low vision or other visual impairments are going to have trouble seeing the striping on each of the treads on the staircase due to insufficient contrast.

**Recommendation 8:**  
*We recommend adding high contrast detectable warning striping on the first step, and on each tread, if possible.*

We recommend adding high contrast detectable warning striping on each tread, if possible. This could likely be provided with a high contrasting textured paint or concrete.



Figure 10



How Figure 10 appears to someone with low vision as a sequela of mild cataracts.



How Figure 10 appears to someone with low vision as a sequela of moderate/severe cataracts or diabetes.

**The ADA Ramp on the Upper Hill**

Although the majority of the ADA ramp on the lower hill is mostly at least 72" wide, as shown in Figure 12, we recommend including safety curbs on both sides of the design for the ADA ramp on the Upper Hill (leading from the front entrance of the Main Hospital to the bottom of the Upper Hill), noting that the distance between both curbs be consistently designed to a width of 78", and also incorporate other recommendations (e.g., resting benches, handrails, etc.) made in this report.



Figure 11

We recommend a 78" width for the following reason: A person was measured in a 26-1/2" standard wheelchair propelling the wheels; the abduction of the arms of this average person measured from elbow to elbow was 34" when propelling the wheelchair; however, some wheelchair users may propel with a greater abduction of their arms. Two standard wheelchairs passing each other would need 68". On a 72"-wide ramp, this leaves only 4" of clearance between the chairs and each side of the ramp (e.g., 2" between the chairs, and 1" on each side of the ramp). Increasing the width by 6" to 78" would provide a more reasonable 10" of space, allowing the chairs to pass without getting too close to the edge of the ramp or walk and would afford a modicum of "personal space" for each wheelchair user.

**Recommendation 9:**  
*Include safety curbs on both sides of the design for the ADA ramp on the Upper Hill (leading from the front entrance of the Main Hospital to the bottom of the Upper Hill), noting that the distance between both curbs be consistently designed to a width of 78", and also incorporate other recommendations (e.g., resting benches, handrails, etc.) made in this report.*



## ***Recommendations***

We respectfully submit these recommendations for consideration:

1. If it is still legal to do so, install poles as safety barriers at the top of the staircase between the center and outer handrail, as is done on staircases in the Main Building. Space safety poles no more than 20" apart; the poles should be at least 27" high for visually impaired people using long canes.
2. Install a high-contrast detectable warning strip on the landing at the top of the staircase.
3. Extend either the curb from the upper portion of the ramp or the handrails from the lower portion of the ramp to provide a protective barrier that is continuous at the transition between the railing and the curb at the curve of the South Ramp where it runs parallel to the South Road.
4. Modify the design specs to increase the landing at the top of the staircase to 60" wide, shortening the blended transition ramp from West Clarendon Road, as necessary.
5. Place benches (similar in design to those that will be used in the Rehabilitation multi-surface training area) along the Tree Allee ramp every 200', starting at Laguna Honda Boulevard. Consideration should be given to creating — at minimum — three turn out areas along the Tree Allee every 200'. The benches should be placed off of the ramp and off of the turnout areas, and should not protrude into the ramp area.
6. Although not required by code, consider installing a water fountain midway up the hill; this would be a very welcome addition.
7. Mount handrails off of the Tree Allee ramp in order to avoid infringement of the 72" "pedestrian area."
8. We recommend adding high contrast detectable warning stripping on each tread, if possible.
9. Include safety curbs on both sides of the design for the ADA ramp on the Upper Hill (leading from the front entrance of the Main Hospital to the bottom of the Upper Hill), noting that the distance between both curbs be consistently designed to a width of 78", and also incorporate other recommendations (e.g., resting benches, handrails, etc.) made in this report.

