AN ALTO TUNNEL PRIMER

By

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NWP electric passenger motor 383 at High School Station near Mill Valley, July 1937. St. Louis Car Co. 1930. Electric 3rd rail this side of car. Mill Valley Branch electric trains quit on 9/30/40 and the entire NWP interurban system serving San Rafael, San Anselmo and Manor was abandoned 2/28/41.

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PREFACE

The narrative reprinted here in pamphlet form originally appeared in The Scott Valley Voice, the newsletter of the Scott Valley Homeowners' Association, between August 2001 and February 2003. As a member of the Board of that Association, I undertook this project at the Board's direction in order to provide our constituent homeowners with a comprehensive body of information from many different sources as background for evaluation of the proposal to re-construct the Alto Tunnel.

Once I began the project, it became clear that the information could be useful to others as well. For example, local and regional political leaders, neighboring homeowners' associations, and the citizens of Mill Valley and Corte Madera might find the information, particularly the pro-con arguments collected in Chapter 5, helpful, should the proposal to re-construct the tunnel ever be seriously considered.

John Palmer
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ALTO TUNNEL FACTS

THE ALTO TUNNEL IS:

a) 2172 feet long
b) 16 feet wide
c) 20 feet high

THE TUNNEL'S MILL VALLEY OPENING
IS AT THE END OF THE MULTI-USE
PATH AFTER IT CROSSES VASCO COURT

NWP interurban 386, arrived from Sausalito, unloads from the front platform special express shipments at Mill Valley Depot, October 1939. 386 was the last of 12 motors and 7 trailers bought new in 1930. It had only 11 years of service until abandonment in 1941, after which it was transformed to Pacific Electric as No. 4511.

CHAPTER 1

A BRIEF HISTORY OF THE ALTO TUNNEL

There was a time in the not-so-distant past when both passenger and freight trains played a significant part in the daily life of southern Marin County. From 1896 to 1929, the Mountain Railway carried passengers from downtown Mill Valley up the steep slopes of Mt. Tamalpais, and the North Pacific Coast Railroad, later renamed the Northwestern Pacific Railroad, ran both passenger and freight trains from Sausalito, through Mill Valley to Corte Madera, along what is now the multi-use path which passes behind the Community Center. The heavy work to build these rail lines was done by hundreds of Chinese laborers, who lived in a tent city just north of the plaza now known as Lytton Square, working under Irish foremen.

A joint venture of the Southern Pacific (SP) and the Santa Fe Railroads, the Northwestern Pacific and its lands became the property of the SP when it bought out the Santa Fe's interest in 1929. The last link in the line between Mill Valley and Corte Madera was the 2,172 foot long Alto Tunnel, bored through Corte Madera Hill, which was completed in 1884. Although the area around the entrance of the tunnel on the Mill Valley side is completely overgrown, it's possible to get a general idea of its location by following the dirt path leading from the multi-use path (behind Edna McGuire school) north, after it crosses Vasco Court, along the back side of the homes on the east side of Underhill Road. On the Corte Madera side, the tunnel's entrance can be reached by following Tunnel Lane south from Willow Avenue, then walking through the brush on the path, which is the remnant of the railroad right-of-way.

The Corte Madera-Sausalito line closed to passenger rail traffic in 1940, a casualty of the growing popularity of automobiles and the completion of the Golden Gate Bridge in 1937. Although usage continued to decline, freight trains still ran through the tunnel during the late 50's and early 60's; the last of them rolled through the Sausalito end of the line from another spur in 1971.

The demise of rail service from Corte Madera to Sausalito opened up Scott Valley (and land on the Corte Madera side of the tunnel as well) for residential development, which began in the late 1960's. In fact, since the rail line fell into disuse, several homes have been built on or near the top of the tunnel entrance on the Corte Madera side; on the Mill Valley side, one home sits nearly atop the entrance and others, including at least two with pools, are situated above and within 60 lateral feet of the tunnel. Additionally, many more homes in both Mill Valley and Corte Madera are now sited on lots adjacent to the right-of-ways leading to the tunnel's openings.

In 1972, the Golden Gate Transit District attempted to purchase the railroad's right-of-way, including the Alto Tunnel, for use as a commuter rail line. Not surprisingly, the new owners of lots and homes in Scott Valley were opposed to that idea, as were the Mill Valley City Council and other community groups. In addition to concerns about noise and impact, residents noted that local schoolchildren routinely crossed the railroad tracks to get to Edna McGuire and Alto schools.

In the late 70's, the County of Marin sought and obtained a $643,000 grant from the U.S. Department of the Interior under an early version of the Rails To Trails program, which released funds to counties wishing to convert abandoned rail property to bicycle or multi-use paths; the funds were used to purchase the right-of-way from SP. Finally, in 1981, with financial help from the County, the support of such prominent politicians as Michael Wornum and Alan Cranston, and the backing of the Scott Valley, Alto-Sutton Manor, and Enchanted Knolls Homeowners Associations, a large portion of the railroad right-of-way was developed into a multi-use path.

During negotiations for the purchase of the right-of-way, SP tried to convince the County to take the Alto Tunnel, as the railroad did not want to spend the money to maintain it. In 1981, the County hired the firm of Copple Foreaker Associates to study the tunnel in anticipation of its possible purchase from Southern Pacific. The Foreaker Study, as it came to be known, described the tunnel as in an advanced state of decay as a result of moisture and neglect.

CHAPTER 2

THE COLLAPSE OF THE TUNNEL

After relinquishing control of its right-of-way in the mid-seventies, Southern Pacific sealed and abandoned the Alto Tunnel in 1979. Although the railroad plugged the opening on the Corte Madera side with 124 feet of concrete and pea gravel (pebbles) and 139 feet of gunnite, the opening on the Mill Valley side was blocked only by a barrier of wooden beams and a steel door.

In December of 1981, the tunnel collapsed at its Mill Valley opening just south of Underhill Road, taking with it a section of the roadway and the eastern portion of the home at 34 Underhill. The collapse left two sinkholes roughly 25 feet in diameter and 20 feet deep; the soil around the house shifted and slid into the sinkholes, and the house moved along with the soil. First the deck nearest to the tunnel collapsed, followed a little later by the garage. The house had to be evacuated soon afterward, when, during a heavy rainstorm, a natural gas pipe pulled away from the structure.

After a period of study, the contract for repairing the collapse was awarded to Maggiora & Ghillotti, with funds provided by Southern Pacific. The project, which included rebuilding the collapsed home and yard, repairing the underpinning of the roadway and the road itself, stabilizing the hillside, and sealing the tunnel, was a major undertaking. Workmen drilled holes on each side of the cave-in-site, into which they inserted steel pipes 36 inches in diameter. A total of 21 holes were dug to a depth of 30 feet, filled with steel and gravel, and plugged with concrete; additionally, a below-grade pier wall was constructed on the northeast side of the house, parallel to the tunnel, to prevent the house from slipping again.

After the owners were evacuated, most of the house was demolished and reconstructed; Southern Pacific wound up purchasing the property, then later sold it to one of its executives after the reconstruction. (It has since been re-sold.)

To repair the damage to the land around the home, a double lot, workers hauled 1,500 tons of gravel to the site, then filled and reconstructed the hillside and the lower portions of the yard to the northeast of the house. To protect the property from future erosion, engineers redesigned the drainage around the entire area of the collapse.

In order to seal the tunnel's opening, workers hauled in an additional 2,140 tons of pea gravel and 138 cubic yards of sand, creating a plug approximately 450 feet long. Taking into account the plugs at both its Corte Madera and Mill Valley ends, about 1/3 of the tunnel's length is now filled in with concrete and gravel.

Although no one knows for certain the condition of the remaining unplugged section of the tunnel, the Foreaker study of 1981 predicted that it would collapse; 22 more years of neglect, moisture, and lack of oxygen are certain to have caused further deterioration to the wooden supports of the tunnel and its walls.

CHAPTER 3

THE ENGINEERING STUDIES, 1972-1994

Since the Alto Tunnel was closed to train traffic and sealed in 1971, several firms have conducted engineering studies on it, although not all for the same purpose. Initially, before Scott Valley was fully developed, the Golden Gate Transit District wanted to acquire the tunnel for use as a high-speed commuter rail line, and commissioned a study for that purpose (the 1972 Kaiser study). Residents and civic leaders in the cities on both sides of the tunnel strongly opposed the idea, which was quickly dropped, and the tunnel remained closed at both ends.

In their study, Kaiser's engineers made the following observations:

- Both halves of the tunnel were taking on water, the southern half more than the northern;
- Most of the wooden support posts were wet and substantially deteriorated, conditions that posed a severe danger of cave-ins along the tunnel's length;
- There was exposed rock (no lining) in the middle of the tunnel;
- The visible rock showed signs of spalling (breaking off along the surface), which could trigger a progressive failure if the support system continued to disintegrate;
- The rock was of the Franciscan group, consisting of sandstone, conglomerates, and shales, which were of a "low sheer strength when saturated";
- Because the supports were timber, fire was an acute hazard in that it could destroy the support system of the rock structure.

The engineers recommended that the bulkheads at both tunnel entrances be modified to allow circulation of air, since moisture inside the sealed tunnel was accelerating the deterioration of the timber supports and increasing the risk of collapse; this recommendation was never implemented.

In 1981, the County of Marin commissioned a formal study from Copple Foreaker Associates, Consulting Engineers, which included an inspection of the tunnel. Assisting in the study was the firm of Harding Lawson Associates, Engineers and Geologists (HLA), which prepared a supplemental report. The stated purpose of the Foreaker study was "to determine the present condition of the tunnel, to make an appraisal of existing and future potential problems resulting from defects or deterioration, and to study the feasibility of various ways to make the tunnel safe."

In other words, the Foreaker study was commissioned to determine how to prevent further deterioration of the tunnel and to prevent damage to the homes which had since been built over its entrances and above its length, as well as to determine if it could be safely used for other purposes. Ironically, less than six months after the Foreaker study was completed, the tunnel's south entrance collapsed, an event described in Chapter 2 of this series, severely damaging one of those homes.

The Foreaker study reiterated and concurred with all the findings and recommendations of the Kaiser study, and included the following further observations:

- The timber support system was now "almost totally destroyed from decay" and "will offer only a fraction of its intended support for a few more years and then will be totally destroyed by decay";

- There were several small failures and one large cave-in inside the tunnel;

- "The condition of the timber is such that repairs would not be feasible", and "if the tunnel is to be maintained, a completely new support system is necessary".

The Foreaker study went on to enumerate three alternatives to deal with the tunnel:

1. "Accept the risk that the tunnel will have large cave-ins which will reach the surface";

2. "Replace the deteriorated timber support system" for about 2/3 of its length at a projected cost in 1981 dollars of $2,835,000 (which did not include the cost of acquiring the rights-of-way, over which the railroad had only easements, and any homes, of which there are at least two, which would probably have to be condemned in order to proceed with that work).

3. Fill the tunnel for several hundred feet at both ends and re-seal it. This was eventually done, although not before the 1981 collapse at its southern end.

In March of 1982, after the tunnel collapsed, Copple Foreaker Associates revised its July '81 study to take into account the emergency work done to shore up its southern end, and modified the firm's earlier recommendations to include more extensive preventative measures.

The Harding Lawson Associates (HLA) report dated May 1, 1981 noted the precarious position of homes above both entrances to the tunnel and described the geologic conditions found in both the tunnel and the hill through which it was bored. Among HLA's conclusions were the following:

- The tunnel was in imminent danger of collapsing, possibly all the way to the surface (this did occur seven months later);

- "The obvious most effective mitigating measures would be to either line the tunnel with steel and concrete supports or fill it with concrete", estimating that the cost to re-support the tunnel would be between $5,215,000 to $6,519,000 (in 1981 dollars), which again doesn't include any of the ancillary real estate costs described above.

- "Shotcrete lining over the existing timber supports would probably be ineffective since the timber would continue to deteriorate and the shotcrete above would provide no appreciable structural support".

In 1994, the Marin County Department of Parks and Open Space commissioned a study from Brady and Associates to look at the possibility of creating a North-South bikeway, which included studying the feasibility of reconstructing the Alto Tunnel. This report noted that re-constructing the Alto Tunnel would cost more than any other segment of the bikeway, and stated that "the length of the tunnel would also make it difficult to light and secure for bicycle use".

In evaluating the cost of the tunnel's reconstruction, the Brady study suggested that new steel supports be installed for only about 64% of the tunnel's length, leaving 783 feet supported only by the existing timber and shotcrete. The study included an estimate that the cost of this partial reconstruction would be $4,600,000 (in 1994 dollars).

Although its goal of promoting bicycle use, especially for commuting, is a worthy cause, the Brady study did not take into account HLA's conclusion that the entire length of the tunnel would have to be reinforced with steel in order to assure its safety. The danger of fire in the wooden supports, an issue raised by the Kaiser engineers, was also not discussed in the Brady study.

When speaking of its potential cost, advocates of reconstructing the tunnel usually quote figures and recommendations from the Brady study, or from the draft Marin County Bicycle Plan of June 2002, which contains an estimate based on the Brady Study; however, they generally don't mention the recommendations and estimates in the HLA study, which advised more thorough reinforcement of the existing structure prior to any re-use. Therefore, it appears that the cost estimates of the Brady study, which also do not include the additional expense of acquiring the pertinent real estate and rights-of-way, are incomplete.

CHAPTER 4

THE QUINCY ENGINEERING STUDY OF 2001, AND THE CITY OF MILL VALLEY'S RESOLUTION REGARDING RECONSTRUCTION OF THE TUNNEL

In April of 2001, the Congestion Management Agency (CMA) of the Marin County Department of Public Works commissioned a new feasibility study from the firms of Quincy Engineering, Jacobs Associates, and Parikh Consultants in order to evaluate the Alto Tunnel for its possible conversion to pedestrian and bicycle use.

On June 5, 2001 a team from these firms and from CMA attempted to enter the tunnel at its northern portal (as the southern end was plugged twenty years earlier), and confirmed that access to the interior of the tunnel from the north was blocked by a plug of concrete and shotcrete, as previous reports had claimed. Since the balance of the tunnel could not be inspected without boring through the concrete, the team chose to complete its task by summarizing the findings of all the previous studies, projecting the tunnel's current conditions based on those findings, and recommending a more thorough investigation. The project was broken down into three phases, as follows:

VOLUME I: Background Information
VOLUME II: Engineering Summary and Proposed Supplemental Investigation
VOLUME III: Feasibility Assessment

The team completed Volume I, a compendium of all the previous studies and related correspondence, and Volume II, the findings of the limited investigation of June 5, and released them in August of 2001. Volume II went on to state that the County would have to spend another $398,000 to complete the Feasibility Assessment envisioned for Volume III, which is intended to provide options and anticipated costs for re-constructing the tunnel; its authors also pointed out that even after the Assessment is completed, the results may not be fully conclusive.

In order to complete the Feasibility Assessment, the authors of Volume II discussed several options which could be used to gain sufficient access to the tunnel's interior to enable the team to complete its work, then settled on its recommendation: boring through the concrete plug at the northern (Corte Madera) end using road header (excavation) equipment.

Since the plug is reported to be 124 feet long, and another 170 foot long section of fill is believed to extend south of the concrete, the excavation would need to extend almost 300 feet into the tunnel in order to provide access to its interior. The authors further proposed the installation of monitoring equipment to check on surface settlement, ground movement, and subsurface movement in order to protect the homes atop and along the northern portal during this process.

As noted, the bid for this further study is $398,000; the Board of Supervisors voted to seek funding sources from the State and Federal Governments rather than spend money from the County's general account for this purpose. To date, no source for this funding has been located, so the process has been stalled until the money can be found.

It is interesting to note again that not one of the studies to date, including the most recent, has included in its estimate the potential costs and impacts of acquiring the rights of way and other property necessary to complete the proposed bikeway. The County owns only the middle section of the tunnel (963 linear feet), while the Union Pacific Railroad owns 720 feet of it at the southern end and 490 feet at the northern end. Also, several homes now sit directly above sensitive portions of the tunnel's openings, many more homes line the entrances at either end, and roadways and utility lines crisscross the routes leading to the portals. At least two homes, one above each portal, and possibly a third, would either have to be condemned and acquired at their fair market value, or vacated, re-engineered, and reconstructed, prior to the commencement of any work to rebuild the tunnel.

Acknowledging the significant impact that reconstructing the tunnel would have on the City, Mill Valley's civic leaders have paid close attention to the progress of this proposal. On December 4, 2000, the City Council passed Resolution 00-36, and made a point of ensuring that the document was presented to the Marin County Board of Supervisors and the CMA. The Resolution lists eleven issues that the Council wants to be studied in the Feasibility Assessment, among which are:

1) The manner in which construction of the tunnel would be financed, including a cost/benefit analysis;
2) The extent to which reconstruction would impact the safety of homes and residents nearby;
3) Analysis of tunnel safety, and the costs of policing, lighting, and maintaining it if it were to be reconstructed;
4) The extent to which reconstruction of the tunnel would reduce funding for other worthy bicycle and pedestrian projects;
5) Evaluation of the alternatives to using the tunnel, and a cost/benefit analysis of improving those alternatives.

Although it is not expressly stated in the Resolution, it appears that the Council's acceptance of the findings and recommendations of the Feasibility Assessment would depend upon a satisfactory resolution of the issues it has raised.

North Pacific Coast four truck train shed was erected on the pier at Sausalito in 1894. 324 feet long and 80 feet wide, big enough to allow passengers to transfer from trains to ferries under cover.

CHAPTER 5

RECONSTRUCTING THE ALTO TUNNEL - PRO AND CON

Publication of the Draft Marin County Bicycle Plan by Alta Transportation Consulting in June of 2000, including its recommendation that the Alto Tunnel be studied once again as a preliminary step toward its reconstruction for bicycle and pedestrian use, focused attention on the tunnel once again. Long a dream of bicycle enthusiasts, the possibility that the tunnel would be put back into use became a cause of concern for many residents on both sides of its portals, particularly those whose homes lie along the route of what would become the "Bicycle Freeway", as it is described on the website[1] of the Marin County Bicycle Coalition (MCBC). Board members of the Chapman Meadows Homeowners Association, on the Corte Madera side, initially led the opposition to the reconstruction in the local media, and homeowners on the Mill Valley side soon joined them. Over the next year, several articles and editorials, pro and con, appeared in the Marin Independent Journal (IJ), the Mill Valley Herald, the Pacific Sun, and other local publications. When Corte Madera and Mill Valley civic leaders held public meetings to discuss whether or not to approve a study on the reconstruction, many on both sides of the issue spoke to their positions. The following arguments for and against reconstruction of the tunnel were taken from those exchanges.

ISSUE A - TUNNEL USE

PRO: Bicycle Advocates claim that reconstructing the Alto Tunnel for bicycle and pedestrian use would encourage enough people to get out of their cars to help relieve automobile congestion on Highway 101. Reconstructing the tunnel is the "top priority multi-jurisdictional regional bicycle infrastructure project for Marin County", according to an MCBC press release dated 1/19/01. "Tunnels improve the flow of transportation. There are fewer cars on the road. . ." stated Debbie Hubsmith, Executive Director of MCBC, in the Mill Valley Herald on 12/12/00. "The tunnel would be used by students, seniors, pedestrians and bike commuters, providing an alternative to the automobile and helping to unlock gridlock", claimed Paul Carroll, Director of Transit Alternatives of Marin, in an IJ article in 2001. "Thanks to the bicycle industry, Marin's North-South Bicycle Freeway will be at the forefront of the evolution" (Debbie Hubsmith). "The Alto Tunnel holds promise as a positive solution to our increasing local automobile traffic problems", according to Paul Carroll in a letter to the Herald dated 11/14/00.

CON: There has never been a survey taken to determine how many people would actually use the tunnel to bicycle 15 or more miles each way to work. Tunnel opponents believe that for most people, commuting to work to and from Central Marin by bicycle is not a practical alternative to driving or using existing public transportation. Bicycles are impractical to use for anything more than light shopping, especially for families with children. Additionally, Corte Madera and Mill Valley have completely separate school districts, so it is unlikely that students would bike to and from school through the tunnel. Bicycle enthusiasts are trying to obtain federal and state funds earmarked for transportation uses for what is essentially a recreational use, promoted in large part by those who stand to benefit from it economically, claim tunnel opponents. The MCBC website lists the sources of its funding, most of which comes from Bikes Belong, a consortium of 61 bicycle manufacturers, bike parts and clothing manufacturers and suppliers, and bicycle-related publications. MCBC has also obtained several grants for consulting work on reconstructing the Alto Tunnel, for other tunnels in Marin, and for the North-South-Bikeway.

On the issue of funding the reconstruction of the tunnel, its opponents note that California law holds that state funds be used for commute as opposed to recreational travel. TDA (Transportation Development Act) funds "are to be used for transportation purposes to school, work or shopping, and not primarily for physical exercise or recreation without such a destination", according to the California Streets and Highways Code, section 890-894.2. Quentin Kopp, then the California Senate Transportation Chair, stated in a letter dated 9/98, quoted in an article in the Coastal Post dated 1/1/01, that "I don't believe the State Highway Fund, revenue from state owned toll bridges, or federal transportation funds are intended for recreational bicycle facilities".

ISSUE B - NEIGHBORHOOD IMPACT

PRO: Those who favor reconstructing the tunnel believe that homeowners and neighborhoods on both sides of the tunnel would derive a range of benefits from its redevelopment. "The reopening of the tunnel would be an incredible boon to the economy and to the residents. [Tunnels] are a welcome asset, improving property values", claimed Debbie Hubsmith in the Herald on 12/12/00. "Such 'greenway' corridors are often listed among communities' most treasured assets", according to bicycle enthusiast Joe Breeze in an IJ op-ed piece dated 11/30/01. Referring to other tunnels converted to bikeways, Mr. Breeze went on to say that "Property values increased and quality of life improved".

CON: Unlike most of the rural and semi-rural tunnels to which Mr. Breeze refers, access to the Alto Tunnel runs directly across streets and through quiet residential neighborhoods. Families who stand to lose their homes, and the homeowners alongside whose front and back yards the Bicycle Freeway would run, are very concerned about its impact on their neighborhoods. To illustrate their point, tunnel opponents observe that in public meetings, bicycle enthusiasts consistently refer to existing multi-use paths as bike paths, an indication of their thinking about sharing these routes with dog walkers, joggers, pedestrians, and parents with strollers.

ISSUE C - COSTS VS. BENEFITS

PRO: The cost of reconstructing the tunnel should be weighed against the cost of freeway improvements say bicycle advocates, who believe that the benefits to be derived from a re-opened tunnel would justify the expenditure. "Bicycle/pedestrian projects offer the highest bang for the buck", claimed Joe Breeze in the IJ on 11/30/01. "Those who oppose the re-opening of the tunnel say it wouldn't be cost-effective. It is impossible to prove something is cost effective before you've done it", according to Paul Carroll in an article in the Mill Valley Herald dated 12/12/00. In a statement promoting bicycle use, James Oberstar of Minnesota, the ranking Democrat on the House Transportation Committee, who has traveled to Marin to observe the tunnel firsthand, said "You should know that bicycle improvement construction costs $189,000 a mile for 12-foot shared paths. You should also know that 1 mile of freeway costs $46,000,000 a mile."

CON: Opponents claim that bicycle advocates are not realistic about costs. "MCBC and the Marin Bike Plan are asking for millions to be spent on a project with no verifiable demand", were according to the Coastal Post article of 1/1/01. An IJ editorial from the autumn of 2001 stated "We're not convinced this is a worthwhile expenditure of the public's money. Couldn't this political energy and taxpayer cash be put to a better, more beneficial use, like creating and improving bike lanes across Marin?. . . the cost of re-opening the tunnel would be prohibitively expensive, especially for the benefit it would derive".

As was noted in the third installment of this series, the Brady Study of 1994 estimated the cost at that time to reconstruct the tunnel, which had collapsed once before taking down a home with it, to be $4,600,000; this estimate was done without entering the tunnel, which is 118 years old and supported only by the original timber bracing, and therefore without any direct study of its condition. Additionally, the Brady Study's estimate called for structurally reinforcing only about 2/3 of the tunnel's length with steel, not its entire length as recommended by the Harding Lawson Associates (HLA) study of 1981.

As a result of its low cost estimate, the Brady Study and the adjusted estimate in the Draft Bicycle Plan based on it are the ones most often quoted by bike enthusiasts. However, the estimate in the Brady study also omitted the cost of future engineering studies ($398,000 for the current study alone), the cost of acquiring rights of way not owned by the county, and all other real estate costs. The HLA study estimated a cost of $5.2 - $6.2 million to reconstruct the tunnel in 1981, again not factoring in the cost of acquiring the real estate necessary to complete the project. Reconstructing the 1,104 foot-long Cal Park Tunnel, which was estimated to cost $2,400,000 in the Draft Bicycle Plan in June of 2000, is currently budgeted at $6 million (IJ, 5/02), or 250% more than the 2000 estimate, and there's no real estate to acquire. Given the above, it's easy to imagine the cost to reconstruct the 2,172 foot-long Alto Tunnel rising to $15,000,000 or more. That figure would put its cost at $6,906 per linear feet, a number close to the $8,712 per linear foot Mr. Oberstar

quoted for freeway construction, far higher than the $36 per linear foot he quoted to construct a bike path. In other words, even a $10,000,000 reconstruction of the 4/10 of a mile long tunnel would cost the equivalent of 53 miles of new bicycle/pedestrian paths.

ISSUE D - SAFETY

PRO: The safety of bicyclists riding on Camino Alto is a prime concern of the Bicycle Coalition. "We are very interested in re-opening the tunnel. If you bike on Camino Alto, for instance, it is very dangerous and has no shoulder. The tunnel would be flat, car-free, and straight", stated Paul Carroll in the Mill Valley Herald on 12/12/00.

CON: On the issue of safety, there seems to be unanimous agreement. People who drive on Camino Alto would love to see more separation between bicyclists and automobiles. However, opponents note that there are two alternatives to reconstructing the tunnel, namely widening Camino Alto, which could be done for a lot less than reconstructing the tunnel, or improving the existing bike path which already links Mill Valley and Corte Madera, which would cost just $100,000 according to the Marin Draft Bicycle Plan. In fact, both of these projects could be completed for less than half the cost of reconstructing the Alto Tunnel, according to the Draft Bicycle Plan, with minimal impact to residences and low on-going maintenance costs. Although the existing bike path is considerably less steep than Camino Alto, it runs along Highway 101 for part of it's length, and some bicyclists do not like this route; however, tunnel opponents point out that it's hard to imagine that a dark, damp, nearly half mile-long tunnel would be more attractive. Opponents also believe that serious bicyclists would be reluctant to give up the exhilarating downhill ride on Camino Alto in favor of sharing a multi-use path crowded with other users.

ISSUE E - SECURITY

PRO: Tunnels are safe, relatively crime-free, and do not pose any greater security issues to the communities surrounding them than other transportation links such as open bicycle paths or paved highways, bicycle advocacy groups claim. In the pamphlet "Tunnels on Trails" by Amanda Eaken of the bicycle advocacy group Rails to Trails Conservancy (RTC), dated April, 2001, a publication discussing the conversion of several mostly short, rural railroad tunnels to bicycle/pedestrian use, we read that "the dozens of open tunnels around the country demonstrate their great potential to link communities and help create sustainable transportation alternatives". The pamphlet goes on to say that "Numerous studies have concluded that trails do not generate crime. Many studies show that, in fact, those facilities usually result in improvements in safety…", "that 67% of surveyed [tunnel] managers did not report any negative impacts on the communities once tunnels were opened", and that "any negative impacts were minor, or were outweighed by the benefits of opening the tunnel".

Another pro-bike publication called "Rail Trails and Safe Communities" by Hugh Morris, also of the RTC, dated January, 1998, discusses rates of crime on rail trails in 1995 and 1996 and concluded that "overall results…indicate that rail trails are safe places to be", and that "crime on trails is not a common occurrence".

CON: In addition to attributing positive impacts to the re-opened rail tunnels in those pro-bicycle publications, the writers admit that there are significant negative impacts associated with them as well. For example, in "Tunnels on Trails", we also read that "12 of 36 trail managers did report some negative impacts associated with the tunnel". "Rail Trails and Safe Communities" notes that 17% of suburban rail trails suffered graffiti vandalism, 24% had litter problems, 22% described sign damage, and that 14% reported unauthorized motorized use. The Draft Bicycle Plan itself states that ". . . more experienced cyclists often avoid bike paths because they are crowded and full of unpredictable users. There is some evidence that suggests that there are more conflicts on bike paths than riding on street." Additionally, the Brady study of 1994 states that "the length of the tunnel would make it difficult to light and secure for bicycle use". It further noted that ". . . some areas still have coastal wetlands on them", and that "If the [railroad] right-of-way is used for expanded rail transit or a bikeway, right-of-way widening could require filling of wetlands. . ."

Tunnel opponents believe that constructing a Bicycle Freeway through Scott Valley and Chapman Meadows would have significant negative impacts on those neighborhoods, which currently have only local traffic, no through outlets, and negligible crime. Opponents also note that lighting, maintaining and policing the reconstructed tunnel would be an expensive burden, which neither the City of Mill Valley nor the Town of Corte Madera currently has the means to bear.

Opponents point out that none of the studies to date have considered the impact on the quiet, residential neighborhoods on both sides of Corte Madera Hill, which have been extensively developed since the railroad abandoned the tunnel. There are now homes and pools alongside the tunnel's access routes, homes above the tunnel's portals, and entire neighborhoods through which the MCBC's envisioned Bicycle Freeway would run. With the reconstruction of the tunnel, these homes and neighborhoods would lose their privacy and character; as pointed out earlier, several houses would be threatened by any movement of earth necessary to complete the task, and at least two and possibly three homes would have to be vacated, then either demolished or completely reconstructed in order to insure the safety of their inhabitants. Opponents note that conditions surrounding the potential reconstruction of the Alto Tunnel are different from those surrounding the much shorter Cal Park Tunnel, which, after reconstruction, will connect commercial developments and existing transit hubs but will not impact any residences.

CONCLUSION:

Section 5.3.3, page 71, of the Marin County Bicycle and Pedestrian Master Plan states that "The feasibility of reusing any of the tunnels is dependent on several factors". It then goes on to list the following eight criteria: "1) local jurisdictions willing to take on the cost and responsibility of building and operating the facility; 2) local neighborhoods being willing to accept these revitalized corridors; 3) the lack of reasonable, less costly alternatives; 4) the expectation that they will significantly increase bicycling and walking; 5) there are no geological, drainage, or other physical problems with reconstruction; 6) the property owners can come to an agreement with local agencies; 7) the cost of re-construction is within reason; and 8) safety and security issues can be effectively addressed". Availability of federal funding depends on a positive resolution of many of the same issues. Opponents of the reconstruction of the Alto Tunnel claim that the proposal fails on seven of the eight listed criteria, with the only passing grade given to the probability of increased recreational use. Although the Chapman Meadows Homeowners Association has come out squarely against reconstructing the Alto Tunnel in print and in public meetings, as of this writing the Board of the Scott Valley Homeowners Association has not yet taken a formal position on the proposal, preferring to wait until after the publication of this series, which is designed to provide background on the issues involved. However, as is clear to all who have attended the many public meetings in which the reconstruction of the Alto Tunnel has been discussed, should the dream of the Bicycle Coalition to construct a Bicycle Freeway through Scott Valley using the Alto Tunnel ever approach fruition, neighborhood opposition on both the Corte Madera and Mill Valley sides promises to be significant.