City of Oceanside
Development Services Department
Engineering Division

Memorandum

Date: June 24, 2013

To: Honorable Mayor and City Councilmembers

Through: Peter Weiss, City Manager

From: Scott O. Smith, City Engineer

Subject: Quiet Zone – Third Diagnostic Meeting

Since 2006, City staff has worked diligently with North County Transit District (NCTD) staff and Amtrak staff to incorporate safety enhancements within railway projects. As a result of this effort, three of Oceanside's five public railway-roadway crossings have received enhanced safety measures; Cassidy Street, Oceanside Boulevard, and Wisconsin Avenue. Presently, City staff and SANDAG staff are progressing toward a cooperative solution to further enhance safety at the Wisconsin Avenue and Surfrider Way crossings. In addition to working with NCTD and Amtrak, City staff has been seeking to secure federal funding and grants for railway safety enhancements through the Ferguson Group.

City staff recommends conducting a third quiet zone diagnostic meeting in order to identify implementation alternatives and determine a roadmap toward establishing a partial quiet zone. This subsequent diagnostic meeting is essential in confirming final consensus on safety enhancements. Participating agencies will include the City of Oceanside, NCTD, Amtrak, Southern California Regional Rail Authority (SCRRA) Metrolink Commuter Service, BNSF Railway freight service, and the California Public Utilities Commission (CPUC). Cost of this process may be funded through TransNet and is anticipated to be less than $50,000, not including any construction activities.

Staff acknowledges that a quiet zone for all five crossings on the main rail will require some construction funding. However, it appears that at least three of the crossings are close to qualification and may be incorporated into a partial quiet zone, with nominal capital improvement expense. Therefore, staff intends to conduct a third diagnostic meeting, identify alternatives with respective costs, establish a roadmap to implement a quiet zone (partial and/or full), and commence with Federal Railroad Administration (FRA) submittals. Staff anticipates that completion of this effort will take approximately 6-months and can provide a formal update to Council at the time of a funding request and/or construction allocation.

cc: George Buell, Development Services Director
File

ITEM NO. 15

STAFF REPORT

CITY OF OCEANSIDE

DATE: April 11, 2007

TO: Honorable Mayor and City Councilmembers

FROM: Public Works Department

SUBJECT: **PRELIMINARY REVIEW AND DISCUSSION OF QUIET ZONE CONCEPTUAL DESIGN AND COST ESTIMATE**

SYNOPSIS

Staff recommends that the City Council review the quiet zone conceptual design, examine the cost of implementation, and provide direction to staff.

BACKGROUND

In response to a legislative mandate, the Federal Railroad Administration (FRA) issued its Final Rule (final rule) on the Use of Locomotive Horns at Highway-Rail Grade Crossings in mid-2005. The final rule provides an opportunity, not available until now, for localities nationwide to mitigate the effects of train horn noise by establishing new railroad "quiet zones". The intent of a quiet zone is to give communities that are adjacent to a railroad corridor an opportunity to promote neighborhood quality of life, by limiting the impacts of horn blasts; this opportunity is realized through an enhancement of fixed safety improvements at highway-rail grade crossings.

Prior to 2005, the FRA regulations required freight and passenger trains to sound horns, at approximately 100-decibels, as a warning to motorists and pedestrians in approaching highway-rail grade crossings. Depending upon the speed of the train, horns could be sounded as much as ¼-mile in advance of the highway-rail grade crossing.

In general, the final rule requires the implementation of Supplemental Safety Measures (SSMs) at each crossing to compensate for the horns that are no longer being sounded at the crossing. The most common SSMs that address vehicle safety are raised median extensions and exit gates. If pedestrian safety is identified as a concern by the roadway owner, railroads, and/or regulatory agencies, additional improvements may be necessary. The final rule is not as prescriptive with pedestrian safety improvements as with vehicle safety improvements. Therefore, the final rule requires the local entities to come to an agreement on the implementation of appropriate pedestrian safety improvements.

In 2006, the North County Transit District (NCTD) Board adopted a policy for working with cities to establish quiet zones in accordance with the final rule. The policy outlines process, capital cost responsibilities, and maintenance cost responsibilities.

Late in 2006, the City contracted RailPros Incorporated (RailPros) as a quiet zone design consultant to provide assistance in implementing a quiet zone in accordance with the final rule, NCTD policy, and applicable California Public Utilities Commission (CPUC) regulations.

The City is pursuing the implementation of a quiet zone along the NCTD main line; silencing the sounding of train horns at the following at-grade crossings:

- Surfrider Way
- Mission Avenue
- Wisconsin Avenue
- Oceanside Boulevard
- Cassidy Street

The following railroad entities operate at some or all of these crossings:

- NCTD Coaster Commuter Service
- Amtrak Pacific Surfliner Intercity Passenger Service
- Southern California Regional Rail Authority (SCRRA) Metrolink Commuter Service
- BNSF Railway freight service

It should be noted that a quiet zone does not completely eliminate noise associated with railroad crossings. Warning bells will continue to sound and train operators are permitted to blast the horn when safety concerns are present, such as pedestrians walking in the railroad corridor.

ANALYSIS

In November 2006, RailPros and the City participated in a diagnostic meeting, with the railroad operating entities and the CPUC, to discuss what improvements would be required at each crossing in order to implement a quiet zone. In general, the required vehicular SSMs consist of:

- Exit Gates
- Raised Median Extensions
- Driveway relocations/closures

In order to adequately address pedestrian safety, the following improvements are necessary:

- Reconfiguration of Sidewalks
- Pedestrian Channelization
- Installation of Detectable Warning Strips at Sidewalk Approaches to Tracks
- Pedestrian Gates

Attached to the staff report are conceptual design exhibits and cost estimates which reveal the proposed improvements for each crossing. The estimated cost for the railroad signal improvements were provided by NCTD, developed by Pacific Railway Enterprises. All other costs were developed by RailPros, based on information provided by the City of Oceanside, City of San Diego, and NCTD.

In February 2007 the City sent out a notice of intent (NOI) to establish the new quiet zone, as required under the final rule. The NOI is the first official notice and provides a 60-day comment period for all involved parties.

FISCAL IMPACT

The total capital expenditure regarding the implementation of a quiet zone for the NCTD main line with five at-grade crossings is estimated to range between $7,000,000 and $9,000,000. This initial estimate presents a low and high figure as effort to account for the sizeable variations typically found for a project scoped at this early stage. Quiet zone funding alternatives include: specific quiet zone grant or federal appropriation money, use of existing street maintenance grant monies, or the formation of an assessment district.

In 2006, City staff submitted a federal appropriations request to fund the implementation of a quiet zone. Staff is currently awaiting response to that $2 million appropriation submission; the potential to receive this funding is unknown.

Existing street maintenance funds may be diverted on an annual basis to fund approximately $250,000 to $500,000 to the quiet zone. The annual street maintenance fund is approximately $3.5 million; this fund supports the City street restoration program which maintains and prolongs the life of paved surfaces within the public right-of-way. Reallocation of street maintenance funds will delay a portion of the maintenance effort to City streets.

The final funding alternative requires the formation of an assessment district, which enables funding through a long-term bond. Guarantee and payment of a quiet zone bond would be equally shared between private parties within the newly created district. Many details and parameters for the formation of a new assessment district would need

to be outlined and voted upon. However, the initial estimate for a 20-year tax exempt, non-rated assessment bond at the current market rate (March 27, 2007), applied to approximately 1,000 benefiting units, yields the following annual cost:

Table 1

Funding Amount	Annual Cost	Annual City Share	Annual Cost for Each Unit
$9 million	$725,000	-	$725
$7 million	$570,000	-	$570
$9 million	$725,000	$250,000	$475
$7 million	$570,000	$250,000	$320

The presented alternatives are not necessarily mutually exclusive from one another; as shown in Table 1, each alternative may be structured to bear the entire burden or combined to create a cost-share option. Therefore, fiscal impact is primarily determined by the option selected.

In addition to capital costs, the City is required to reimburse NCTD for maintenance of the additional quiet zone signal facilities. Annual maintenance costs have not yet been developed by NCTD. However, based upon maintenance cost from other railroads, RailPros estimates the annual maintenance expense to be $25,000 to $50,000 per year. The City will also be obligated to pay capital replacement costs regarding all equipment added as part of the quiet zone implementation. For example, if a truck knocks out an exit gate mechanism, the City will need to reimburse NCTD for replacing the exit gate mechanism. In general, the City acquires a permanent financial obligation for the replacement and maintenance of all new improvements resultant from the quiet zone implementation.

INSURANCE REQUIREMENTS

NCTD will require insurance coverage for the quiet zone. Currently, these costs have not been determined. At the June 2006 NCTD Board meeting, NCTD legal counsel indicated that there was a tentative agreement with their insurance carrier to provide "additional insured" coverage for cities. At that time, the insurance fee was estimated at $500 to $700 per crossing, per year. However, NCTD has recently revealed that this may not be the case; the City of Placentia was paying approximately $350,000 per year to insure eight crossings within the City's quiet zone during the interim period before the final rule was adopted.

COMMISSION OR COMMITTEE REPORT

A staff update to the Transportation Commission was provided on March 20, 2007, no action was taken.

CITY ATTORNEY'S ANALYSIS

Does not apply.

RECOMMENDATION

Staff recommends that the City Council review the quiet zone conceptual design, examine the cost of implementation, and provide direction to staff.

PREPARED BY:

Scott O. Smith
Acting City Engineer

SUBMITTED BY:

Peter A. Weiss
Interim City Manager

REVIEWED BY:

Michelle Skaggs-Lawrence, Deputy City Manager

Joseph Arranaga, Acting Deputy Public Works Director

Project:	**Oceanside Quiet Zone**
Estimate:	**Total Project Budget - Conceptual Design**
By:	**RailPros, Inc.**
Date:	**February 23, 2007**

Description	Quantity	Unit	Unit Cost (Low)	Unit Cost (High)	Total (Low)	Total (High)
Project Costs						
City Costs					$2,206,669	$3,203,736
NCTD Costs					$2,857,000	$2,857,000
Total - Construction Costs					***$5,063,669***	***$6,060,736***
Non-Construction Costs						
Environmental and Permitting	5.0%				$253,183	$303,037
Quiet Zone Processing	5.0%				$253,183	$303,037
Project Management	5.0%				$253,183	$303,037
Construction Management	10.0%				$506,367	$606,074
City Administration	5.0%				$253,183	$303,037
NCTD Flag Protection	300	Person-Days	$600	$800	$180,000	$240,000
Total - Non-Construction Costs					***$1,699,101***	***$2,058,221***
Total - Construction + Non-Construction Costs					***$6,762,769***	***$8,118,957***
Escalation - 2 Years	4.5%				***$622,344***	***$747,147***
TOTAL					***$7,385,113***	***$8,866,104***
ROUNDED					***$7,000,000***	***$9,000,000***

Oceanside Quiet Zone
NCTD Preliminary Cost Estimate

Mile Post	Description	Unit	Quantity	Unit Price	Cost
	Signal				
225.9	Surfrider Way	LS	1	$ 400,000	$ 400,000
226.2	Mission Avenue	LS	1	$ 750,000	$ 750,000
226.8	Wisconsin Avenue	LS	1	$ 200,000	$ 200,000
227.2	Oceanside Boulevard	LS	1	$ 200,000	$ 200,000
228.0	Cassidy Street	LS	1	$ 175,000	$ 175,000
				Signal Subtotal	**$ 1,725,000**
	Civil				
225.9	Surfrider Way	LS	1	$ 15,000	$ 15,000
226.2	Mission Avenue	LS	1	$ 35,000	$ 35,000
226.8	Wisconsin Avenue	LS	1	$ 25,000	$ 25,000
227.2	Oceanside Boulevard	LS	1	$ 25,000	$ 25,000
228.0	Cassidy Street	LS	1	$ 15,000	$ 15,000
				Civil Subtotal	**$ 115,000**
				Construction Subtotal	**$ 1,840,000**
				30% Contingency	**$ 552,000**
				Construction Total	**$ 2,392,000**
	Other Costs				
	Signal Engineering	LS	1	$ 300,000	$ 300,000
	Civil Engineering	LS	1	$ 75,000	$ 75,000
	Program Management	LS	1	$ 50,000	$ 50,000
	NCTD Staff	LS	1	$ 40,000	$ 40,000
				Other Cost Total	**$ 465,000**
				Estimated Project Total	**$ 2,857,000**

Project:	**Oceanside Quiet Zone**
Estimate:	**City Estimate - Summary**
By:	**RailPros, Inc.**
Date:	**February 23, 2007**

Description	Quantity	Unit	Unit Cost (Low)	Unit Cost (High)	Total (Low)	Total (High)
Construction Costs						
City Costs - Civil and Traffic					$1,234,500	$1,792,300
Mobilization and Demobilization	10.0%				$123,450	$179,230
Total - Construction Costs					***$1,357,950***	***$1,971,530***
Other Costs - City						
Design	15.0%				$203,693	$295,730
Design Support During Construction	10.0%				$135,795	$197,153
Total - Other Costs, City					***$339,488***	***$492,883***
Total - Construction + Other Costs					***$1,697,438***	***$2,464,413***
Contingency	30.0%				$509,231	$739,324
Total with Contingency					**$2,206,669**	**$3,203,736**

Project:	**Oceanside Quiet Zone**
Estimate:	**Grade Crossing - Conceptual Design**
Location:	**Crossings - Summary**
By:	**RailPros, Inc.**
Date:	**February 23, 2007**

Description	Quantity	Unit	Unit Cost (Low)	Unit Cost (High)	Cost (Low)	Total (Low)	Cost (High)	Total (High)
Demolish and Remove								
Median	320	LF	$100	$150	$32,000		$48,000	
Curb	400	LF	$20	$30	$8,000		$12,000	
Curb and gutter	70	LF	$20	$30	$1,400		$2,100	
Curb ramp	0	EA	$800	$1,000	$0		$0	
Driveway	800	SF	$5	$10	$4,000		$8,000	
Sidewalk	2800	SF	$5	$10	$14,000		$28,000	
Landscaped Area	100	SF	$2	$5	$200		$500	
Chain-link fence	0	LF	$5	$7	$0		$0	
Tubular steel fence	0	LF	$15	$20	$0		$0	
Pedestrian railing	0	LF	$20	$25	$0		$0	
Asphalt Paving - 4"	6500	SF	$5	$10	$32,500		$65,000	
Crossing Panel	250	TF	$40	$50	$10,000		$12,500	
Signing and Striping	4940	Lane Foot	$5	$10	$24,700		$49,400	
SUBTOTAL - Demolish and Remove						*$126,800*		*$225,500*
Construct New								
Median	310	LF	$300	$400	$93,000		$124,000	
Curb	400	LF	$50	$60	$20,000		$24,000	
Curb and gutter	70	LF	$50	$60	$3,500		$4,200	
Curb ramp	0	EA	$4,000	$5,000	$0		$0	
Driveway	800	SF	$50	$60	$40,000		$48,000	
Sidewalk	2800	SF	$40	$50	$112,000		$140,000	
Landscaped Area	1600	SF	$30	$40	$48,000		$64,000	
Chain-link fence	0	LF	$20	$30	$0		$0	
Tubular steel fence	3040	LF	$100	$120	$304,000		$364,800	
Pedestrian railing	400	LF	$100	$120	$40,000		$48,000	
Detectable warning strip	112	LF	$100	$150	$11,200		$16,800	
Pedestrian swing gate	5	EA	$1,000	$2,000	$5,000		$10,000	
Asphalt Paving - 4"	6500	SF	$20	$30	$130,000		$195,000	
Crossing Panel	190	TF	$400	$1,200	$76,000		$228,000	
Signing and Striping	5000	Lane Feet	$15	$20	$75,000		$100,000	
Queue-Cutter Traffic Signal	1	EA	$150,000	$200,000	$150,000		$200,000	
SUBTOTAL - Construct New						*$1,107,700*		*$1,566,800*
TOTAL						***$1,234,500***		***$1,792,300***

Project:	**Oceanside Quiet Zone**
Estimate:	**Grade Crossing - Conceptual Design**
Location:	**Surfrider Way**
By:	**RailPros, Inc.**
Date:	**February 23, 2007**

Description		Quantity	Unit	Unit Cost (Low)	Unit Cost (High)	Cost (Low)	Total (Low)	Cost (High)	Total (High)
Demolish and Remove									
	Median	40	LF	$100	$150	$4,000		$6,000	
	Curb		LF	$20	$30	$0		$0	
	Curb and gutter	70	LF	$20	$30	$1,400		$2,100	
	Curb ramp		EA	$800	$1,000	$0		$0	
	Driveway		SF	$5	$10	$0		$0	
	Sidewalk	700	SF	$5	$10	$3,500		$7,000	
	Landscaped Area		SF	$2	$5	$0		$0	
	Chain-link fence		LF	$5	$7	$0		$0	
	Tubular steel fence		LF	$15	$20	$0		$0	
	Pedestrian railing		LF	$20	$25	$0		$0	
	Asphalt Paving - 4"	1500	SF	$5	$10	$7,500		$15,000	
	Crossing Panel	70	TF	$40	$50	$2,800		$3,500	
	Signing and Striping	1000	Lane Foot	$5	$10	$5,000		$10,000	
SUBTOTAL - Demolish and Remove							*$24,200*		*$43,600*
Construct New									
	Median	100	LF	$300	$400	$30,000		$40,000	
	Curb		LF	$50	$60	$0		$0	
	Curb and gutter	70	LF	$50	$60	$3,500		$4,200	
	Curb ramp		EA	$4,000	$5,000	$0		$0	
	Driveway		SF	$50	$60	$0		$0	
	Sidewalk	700	SF	$40	$50	$28,000		$35,000	
	Landscaped Area	300	SF	$30	$40	$9,000		$12,000	
	Chain-link fence		LF	$20	$30	$0		$0	
	Tubular steel fence	240	LF	$100	$120	$24,000		$28,800	
	Pedestrian railing		LF	$100	$120	$0		$0	
	Detectable warning strip	24	LF	$100	$150	$2,400		$3,600	
	Pedestrian swing gate		EA	$1,000	$2,000	$0		$0	
	Asphalt Paving - 4"	1500	SF	$20	$30	$30,000		$45,000	
	Crossing Panel	10	TF	$400	$1,200	$4,000		$12,000	
	Signing and Striping	1000	Lane Feet	$15	$20	$15,000		$20,000	
	Queue-Cutter Traffic Signal		EA	$150,000	$200,000	$0		$0	
SUBTOTAL - Construct New							*$145,900*		*$200,600*
TOTAL							***$170,100***		***$244,200***

Project:	**Oceanside Quiet Zone**
Estimate:	**Grade Crossing - Conceptual Design**
Location:	**Mission Avenue**
By:	**RailPros, Inc.**
Date:	**February 23, 2007**

Description		Quantity	Unit	Unit Cost (Low)	Unit Cost (High)	Cost (Low)	Total (Low)	Cost (High)	Total (High)
Demolish and Remove									
	Median		LF	$100	$150	$0		$0	
	Curb	400	LF	$20	$30	$8,000		$12,000	
	Curb and gutter		LF	$20	$30	$0		$0	
	Curb ramp		EA	$800	$1,000	$0		$0	
	Driveway	500	SF	$5	$10	$2,500		$5,000	
	Sidewalk	500	SF	$5	$10	$2,500		$5,000	
	Landscaped Area		SF	$2	$5	$0		$0	
	Chain-link fence		LF	$5	$7	$0		$0	
	Tubular steel fence		LF	$15	$20	$0		$0	
	Pedestrian railing		LF	$20	$25	$0		$0	
	Asphalt Paving - 4"		SF	$5	$10	$0		$0	
	Crossing Panel		TF	$40	$50	$0		$0	
	Signing and Striping	1600	Lane Foot	$5	$10	$8,000		$16,000	
SUBTOTAL - Demolish and Remove							*$21,000*		*$38,000*
Construct New									
	Median		LF	$300	$400	$0		$0	
	Curb	400	LF	$50	$60	$20,000		$24,000	
	Curb and gutter		LF	$50	$60	$0		$0	
	Curb ramp		EA	$4,000	$5,000	$0		$0	
	Driveway	500	SF	$50	$60	$25,000		$30,000	
	Sidewalk	500	SF	$40	$50	$20,000		$25,000	
	Landscaped Area		SF	$30	$40	$0		$0	
	Chain-link fence		LF	$20	$30	$0		$0	
	Tubular steel fence	400	LF	$100	$120	$40,000		$48,000	
	Pedestrian railing	400	LF	$100	$120	$40,000		$48,000	
	Detectable warning strip	64	LF	$100	$150	$6,400		$9,600	
	Pedestrian swing gate	4	EA	$1,000	$2,000	$4,000		$8,000	
	Asphalt Paving - 4"		SF	$20	$30	$0		$0	
	Crossing Panel		TF	$400	$1,200	$0		$0	
	Signing and Striping	1600	Lane Feet	$15	$20	$24,000		$32,000	
	Queue-Cutter Traffic Signal	1	EA	$150,000	$200,000	$150,000		$200,000	
SUBTOTAL - Construct New							*$329,400*		*$424,600*
TOTAL							***$350,400***		***$462,600***

Project:	**Oceanside Quiet Zone**
Estimate:	**Grade Crossing - Conceptual Design**
Location:	**Wisconsin Street**
By:	**RailPros, Inc.**
Date:	**February 23, 2007**

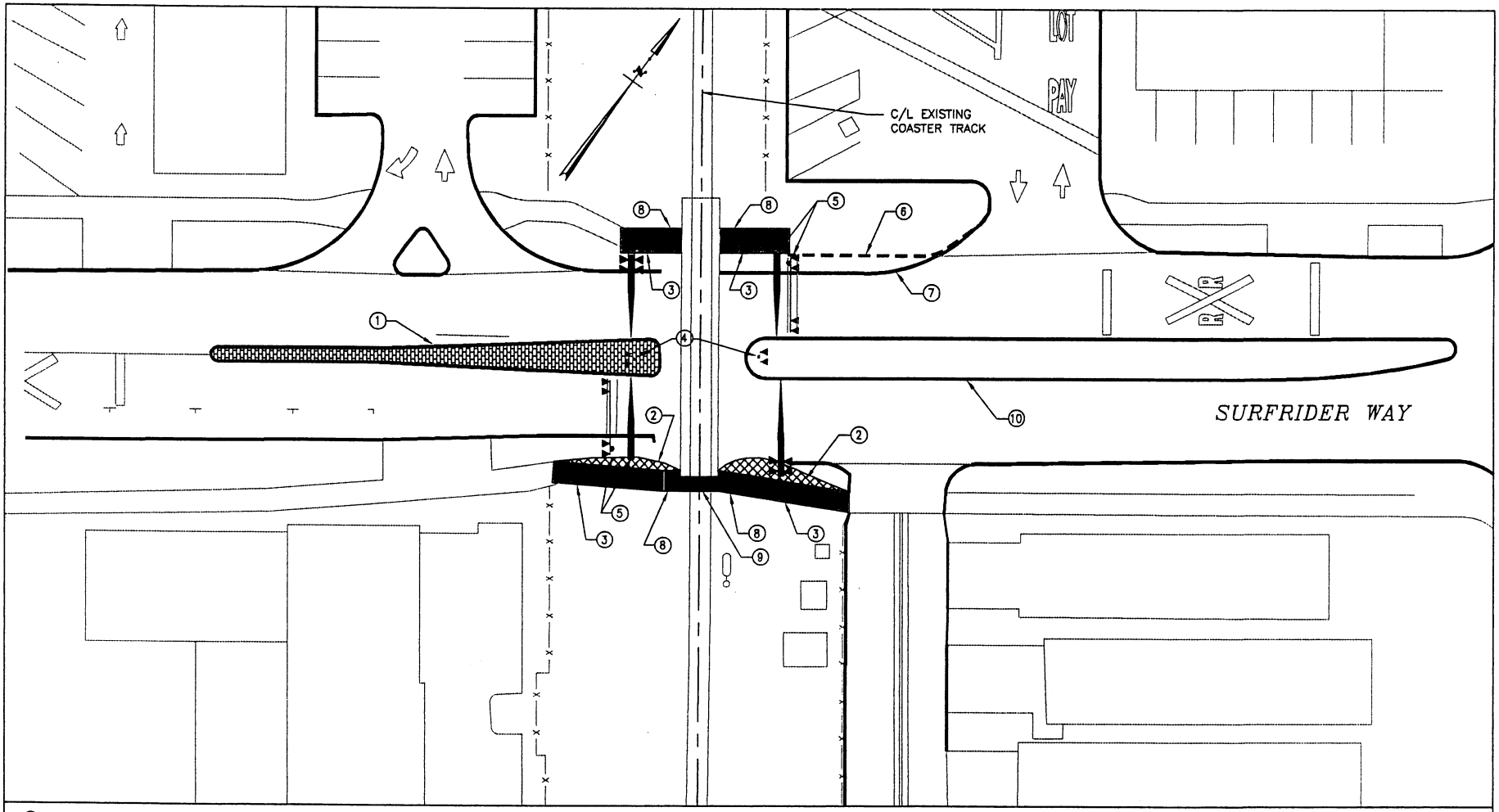
Description		Quantity	Unit	Unit Cost (Low)	Unit Cost (High)	Cost (Low)	Total (Low)	Cost (High)	Total (High)
Demolish and Remove									
	Median	80	LF	$100	$150	$8,000		$12,000	
	Curb		LF	$20	$30	$0		$0	
	Curb and gutter		LF	$20	$30	$0		$0	
	Curb ramp		EA	$800	$1,000	$0		$0	
	Driveway		SF	$5	$10	$0		$0	
	Sidewalk	100	SF	$5	$10	$500		$1,000	
	Landscaped Area	100	SF	$2	$5	$200		$500	
	Chain-link fence		LF	$5	$7	$0		$0	
	Tubular steel fence		LF	$15	$20	$0		$0	
	Pedestrian railing		LF	$20	$25	$0		$0	
	Asphalt Paving - 4"	5000	SF	$5	$10	$25,000		$50,000	
	Crossing Panel	180	TF	$40	$50	$7,200		$9,000	
	Signing and Striping	800	Lane Foot	$5	$10	$4,000		$8,000	
SUBTOTAL - Demolish and Remove							*$44,900*		*$80,500*
Construct New									
	Median	10	LF	$300	$400	$3,000		$4,000	
	Curb		LF	$50	$60	$0		$0	
	Curb and gutter		LF	$50	$60	$0		$0	
	Curb ramp		EA	$4,000	$5,000	$0		$0	
	Driveway		SF	$50	$60	$0		$0	
	Sidewalk	100	SF	$40	$50	$4,000		$5,000	
	Landscaped Area	100	SF	$30	$40	$3,000		$4,000	
	Chain-link fence		LF	$20	$30	$0		$0	
	Tubular steel fence	800	LF	$100	$120	$80,000		$96,000	
	Pedestrian railing		LF	$100	$120	$0		$0	
	Detectable warning strip		LF	$100	$150	$0		$0	
	Pedestrian swing gate		EA	$1,000	$2,000	$0		$0	
	Asphalt Paving - 4"	5000	SF	$20	$30	$100,000		$150,000	
	Crossing Panel	180	TF	$400	$1,200	$72,000		$216,000	
	Signing and Striping	800	Lane Feet	$15	$20	$12,000		$16,000	
	Queue-Cutter Traffic Signal		EA	$150,000	$200,000	$0		$0	
SUBTOTAL - Construct New							*$274,000*		*$491,000*
TOTAL							***$318,900***		***$571,500***

Project:	**Oceanside Quiet Zone**
Estimate:	**Grade Crossing - Conceptual Design**
Location:	**Oceanside Boulevard**
By:	**RailPros, Inc.**
Date:	**February 23, 2007**

Description		Quantity	Unit	Unit Cost (Low)	Unit Cost (High)	Cost (Low)	Total (Low)	Cost (High)	Total (High)
Demolish and Remove									
	Median	100	LF	$100	$150	$10,000		$15,000	
	Curb		LF	$20	$30	$0		$0	
	Curb and gutter		LF	$20	$30	$0		$0	
	Curb ramp		EA	$800	$1,000	$0		$0	
	Driveway	300	SF	$5	$10	$1,500		$3,000	
	Sidewalk	300	SF	$5	$10	$1,500		$3,000	
	Landscaped Area		SF	$2	$5	$0		$0	
	Chain-link fence		LF	$5	$7	$0		$0	
	Tubular steel fence		LF	$15	$20	$0		$0	
	Pedestrian railing		LF	$20	$25	$0		$0	
	Asphalt Paving - 4"		SF	$5	$10	$0		$0	
	Crossing Panel		TF	$40	$50	$0		$0	
	Signing and Striping	1100	Lane Foot	$5	$10	$5,500		$11,000	
SUBTOTAL - Demolish and Remove							*$18,500*		*$32,000*
Construct New									
	Median	100	LF	$300	$400	$30,000		$40,000	
	Curb		LF	$50	$60	$0		$0	
	Curb and gutter		LF	$50	$60	$0		$0	
	Curb ramp		EA	$4,000	$5,000	$0		$0	
	Driveway	300	SF	$50	$60	$15,000		$18,000	
	Sidewalk	300	SF	$40	$50	$12,000		$15,000	
	Landscaped Area		SF	$30	$40	$0		$0	
	Chain-link fence		LF	$20	$30	$0		$0	
	Tubular steel fence	800	LF	$100	$120	$80,000		$96,000	
	Pedestrian railing		LF	$100	$120	$0		$0	
	Detectable warning strip		LF	$100	$150	$0		$0	
	Pedestrian swing gate		EA	$1,000	$2,000	$0		$0	
	Asphalt Paving - 4"		SF	$20	$30	$0		$0	
	Crossing Panel		TF	$400	$1,200	$0		$0	
	Signing and Striping	1100	Lane Feet	$15	$20	$16,500		$22,000	
	Queue-Cutter Traffic Signal		EA	$150,000	$200,000	$0		$0	
SUBTOTAL - Construct New							*$153,500*		*$191,000*
TOTAL							***$172,000***		***$223,000***

Project:	**Oceanside Quiet Zone**
Estimate:	**Grade Crossing - Conceptual Design**
Location:	**Cassidy Street**
By:	**RailPros, Inc.**
Date:	**February 23, 2007**

Description		Quantity	Unit	Unit Cost (Low)	Unit Cost (High)	Cost (Low)	Total (Low)	Cost (High)	Total (High)
Demolish and Remove									
	Median	100	LF	$100	$150	$10,000		$15,000	
	Curb		LF	$20	$30	$0		$0	
	Curb and gutter		LF	$20	$30	$0		$0	
	Curb ramp		EA	$800	$1,000	$0		$0	
	Driveway		SF	$5	$10	$0		$0	
	Sidewalk	1200	SF	$5	$10	$6,000		$12,000	
	Landscaped Area		SF	$2	$5	$0		$0	
	Chain-link fence		LF	$5	$7	$0		$0	
	Tubular steel fence		LF	$15	$20	$0		$0	
	Pedestrian railing		LF	$20	$25	$0		$0	
	Asphalt Paving - 4"		SF	$5	$10	$0		$0	
	Crossing Panel		TF	$40	$50	$0		$0	
	Signing and Striping	440	Lane Foot	$5	$10	$2,200		$4,400	
SUBTOTAL - Demolish and Remove							*$18,200*		*$31,400*
Construct New									
	Median	100	LF	$300	$400	$30,000		$40,000	
	Curb		LF	$50	$60	$0		$0	
	Curb and gutter		LF	$50	$60	$0		$0	
	Curb ramp		EA	$4,000	$5,000	$0		$0	
	Driveway		SF	$50	$60	$0		$0	
	Sidewalk	1200	SF	$40	$50	$48,000		$60,000	
	Landscaped Area	1200	SF	$30	$40	$36,000		$48,000	
	Chain-link fence		LF	$20	$30	$0		$0	
	Tubular steel fence	800	LF	$100	$120	$80,000		$96,000	
	Pedestrian railing		LF	$100	$120	$0		$0	
	Detectable warning strip	24	LF	$100	$150	$2,400		$3,600	
	Pedestrian swing gate	1	EA	$1,000	$2,000	$1,000		$2,000	
	Asphalt Paving - 4"		SF	$20	$30	$0		$0	
	Crossing Panel		TF	$400	$1,200	$0		$0	
	Signing and Striping	500	Lane Feet	$15	$20	$7,500		$10,000	
	Queue-Cutter Traffic Signal		EA	$150,000	$200,000	$0		$0	
SUBTOTAL - Construct New							*$204,900*		*$259,600*
TOTAL							***$223,100***		***$291,000***



1. EXTEND WESTERLY MEDIAN BEYOND DRIVEWAYS (CITY)
2. DEMOLISH AND REMOVE EXISTING SIDEWALK (CITY)
3. CONSTRUCT SIDEWALK (CITY)
4. EXISTING NO. 8 TO REMAIN
5. RELOCATED NO. 9A (CITY)
6. DEMOLISH AND REMOVE EXISTING CURB AND GUTTER (CITY)
7. CONSTRUCT NEW CURB AND GUTTER (CITY)
8. PROPOSED DETECTABLE WARNING STRIP (CITY)
9. EXTEND CROSSING PANEL (CITY)
10. EXISTING RAISED MEDIAN TO REMAIN

REV.	DATE	DESCRIPTION	BY	APP.

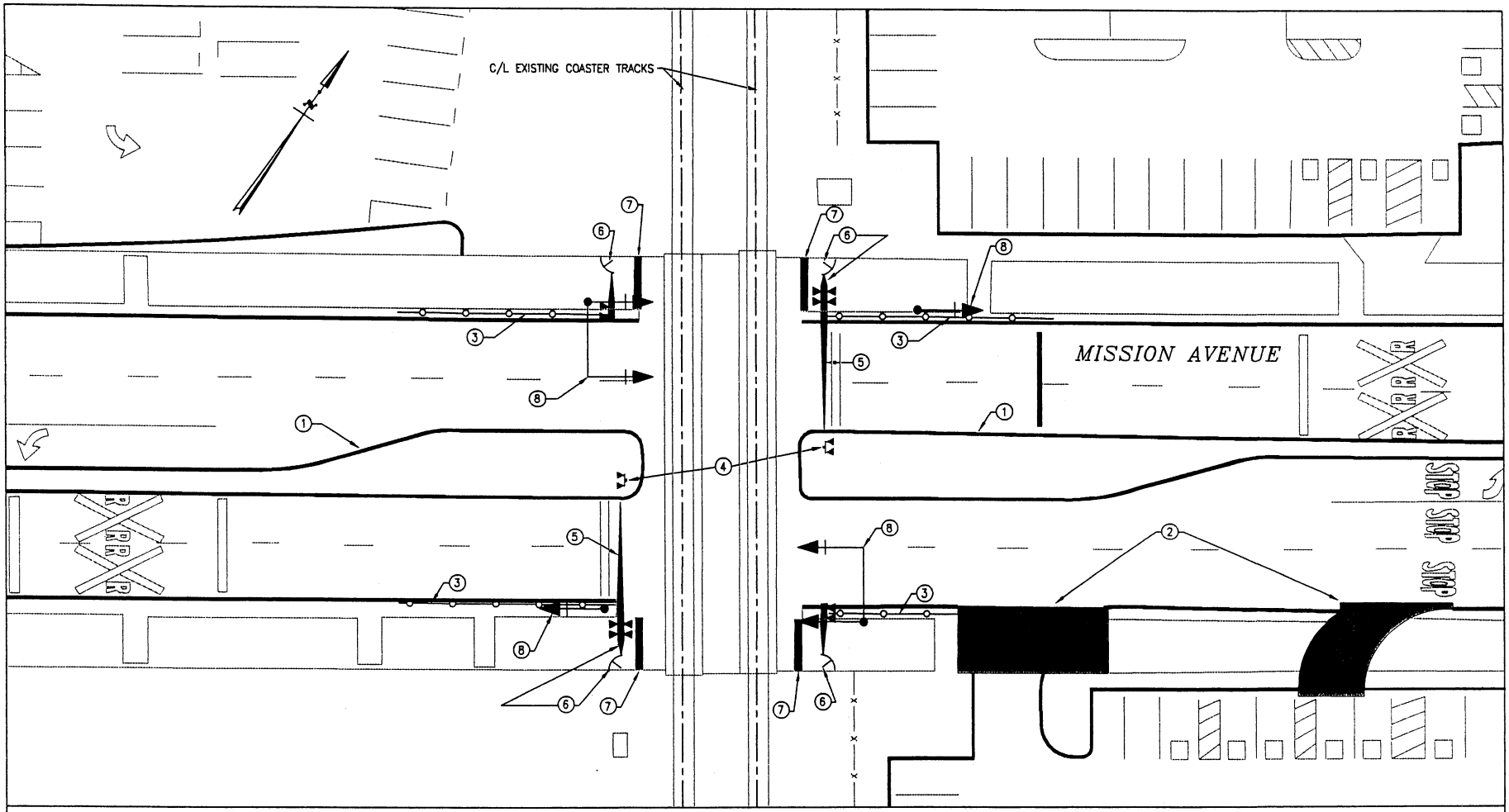
RAILPROS INC.
192 TECHNOLOGY DRIVE, SUITE R
IRVINE, CA 92618
WWW.RAILPROS.COM
E-MAIL: INFO@RAILPROS.COM
PHONE: (714) 734 - 8766
FAX: (714) 734 - 8766

CITY OF OCEANSIDE, CA
RAILROAD QUIET ZONE

SURFRIDER WAY
CONCEPTUAL PLAN

DWG. NO. 1

SCALE:	SIZE: 11"x17"	SHEET 1 OF 6	
DESIGNED: EH	DRAWN: JS	CHECKED: EH	DATE: FEB. 23, 2007



1. MODIFY EXISTING MEDIAN WITH 6" MIN. CURBS AS MAY BE REQUIRED TO HAVE 6" MINIMUM CURBS FROM GATE TO A DISTANCE 100' BEYOND GATE (CITY)
2. CLOSE EXISTING DRIVEWAY OR RELOCATE DRIVEWAY TO BE 60' MINIMUM FROM GATE (CITY)
3. CONSTRUCT PEDESTRIAN RAILING (CITY)
4. EXISTING NO. 8 TO REMAIN
5. EXISTING NO. 9 TO REMAIN
6. PROPOSED NO. 9 PEDESTRIAN GATE AND SWING GATE (CITY)
7. PROPOSED DETECTABLE WARNING STRIP (CITY)
8. FUTURE QUEUE-CUTTER SIGNAL TO BE INSTALLED WHEN ADJACENT INTERSECTIONS ARE SIGNALIZED AND/OR WHEN REQUIRED BY QUEUING STUDY (CITY)

NOTE: SEE SHEET 6 FOR NO. 9 PEDESTRIAN GATE AND SWING GATE DETAILS

REV.	DATE	DESCRIPTION	BY	APP.

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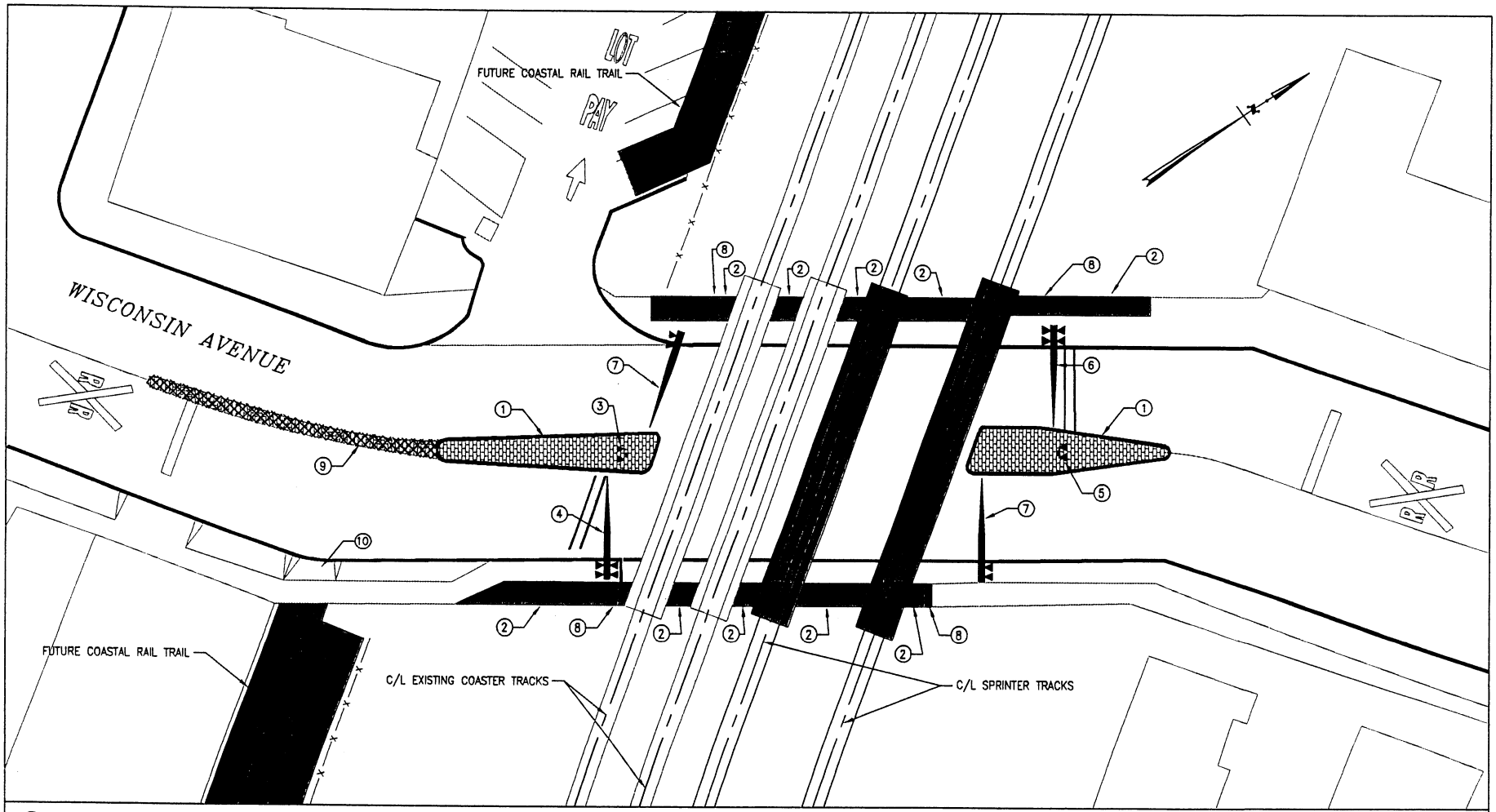
CITY OF OCEANSIDE, CA
RAILROAD QUIET ZONE

MISSION STREET CONCEPTUAL PLAN

DWG. NO. 2

SCALE:	SIZE: 11"x17"	SHEET 2 OF 5	
DESIGNED: EH	DRAWN: JS	CHECKED: EH	DATE: FEB. 23, 2007



1. RECONSTRUCTED MEDIAN (NCTD/SPRINTER)
2. CONSTRUCT NEW SIDEWALK (NCTD/SPRINTER)
3. EXISTING NO. 8 TO REMAIN
4. EXISTING NO. 9 TO REMAIN
5. RELOCATED NO. 8 (NCTD/SPRINTER)
6. RELOCATED NO. 9 (NCTD/SPRINTER)
7. PROPOSED NO. 9 EXIT GATE (CITY)
8. PROPOSED DETECTABLE WARNING STRIP (NCTD/SPRINTER)
9. REMOVE PORTION OF MEDIAN (CITY)
10. PROPOSED DRIVEWAY (CITY – COASTAL RAIL TRAIL PROJECT)

REV.	DATE	DESCRIPTION	BY	APP.

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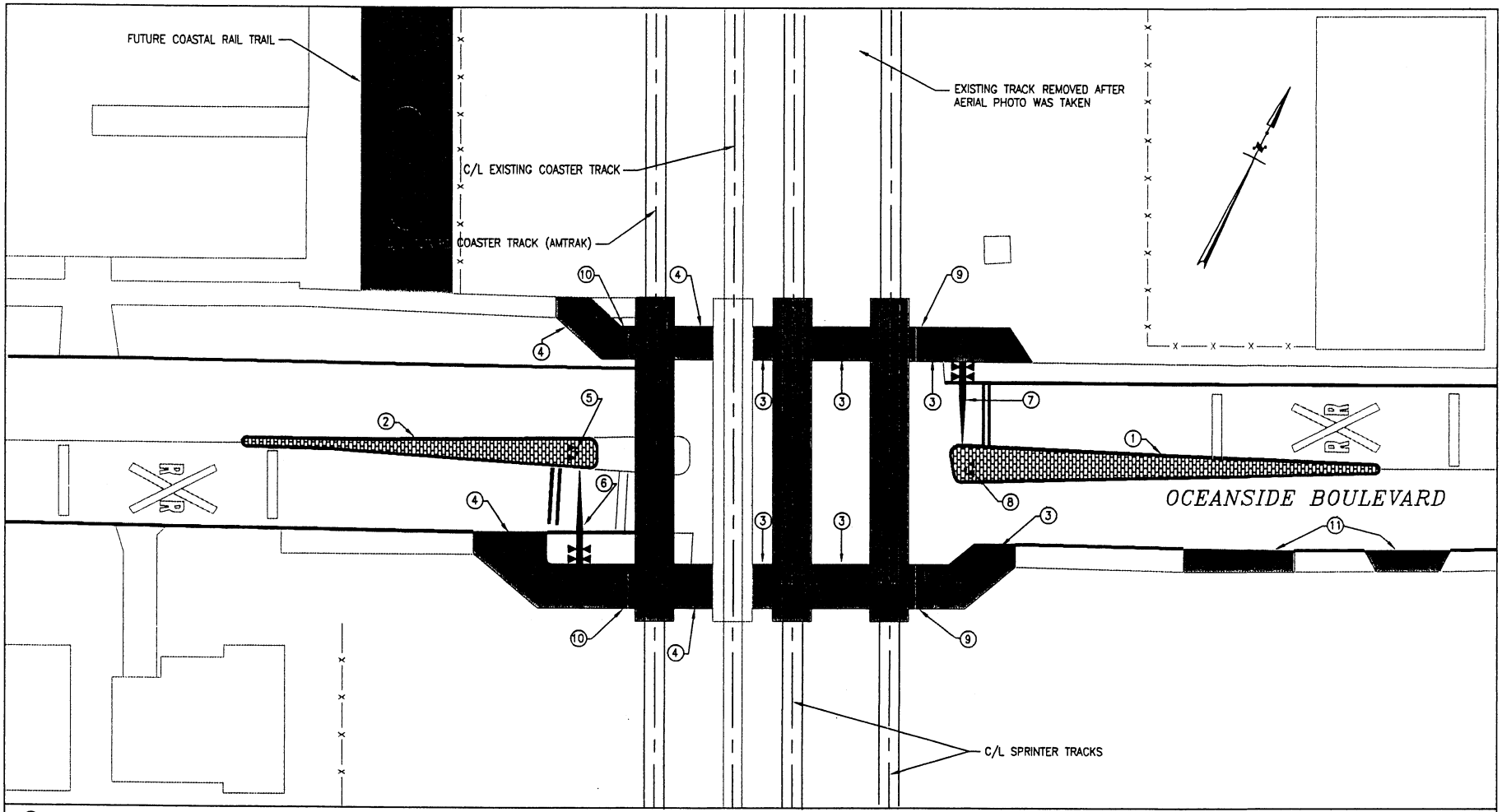
CITY OF OCEANSIDE, CA
RAILROAD QUIET ZONE

WISCONSIN AVENUE CONCEPTUAL PLAN

DWG. NO. 3

SCALE:	SIZE: 11"x17"	SHEET 3 OF 6	
DESIGNED: EH	DRAWN: JS	CHECKED: EH	DATE: FEB. 23, 2007



1. RECONSTRUCT EAST MEDIAN WITH 6" MIN. CURBS (CITY)
2. RECONSTRUCT WEST MEDIAN WITH 6" MIN. CURBS (AMTRAK)
3. CONSTRUCT NEW SIDEWALK (NCTD/SPRINTER)
4. CONSTRUCT NEW SIDEWALK (AMTRAK)
5. RELOCATED NO. 8 (AMTRAK)
6. RELOCATED NO. 9 (AMTRAK)
7. RELOCATED NO. 8 (NCTD/SPRINTER)
8. EXISTING NO. 8 TO REMAIN
9. PROPOSED DETECTABLE WARNING STRIP (NCTD/SPRINTER)
10. PROPOSED DETECTABLE WARNING STRIP (AMTRAK)
11. CLOSE EXISTING DRIVEWAY OR RELOCATE DRIVEWAY TO BE 60' MINIMUM FROM GATE

REV.	DATE	DESCRIPTION	BY	APP.

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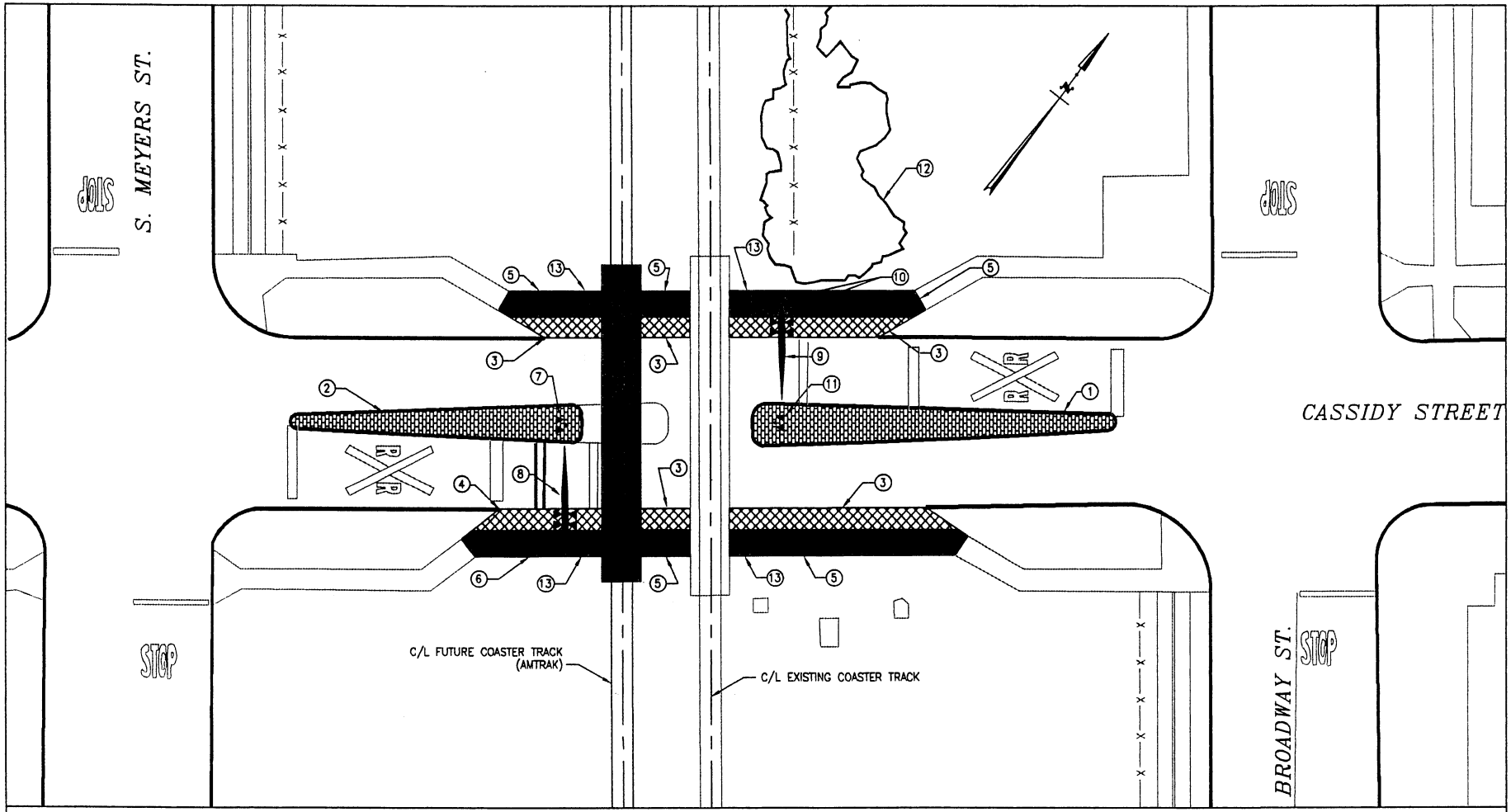
CITY OF OCEANSIDE, CA
RAILROAD QUIET ZONE

OCEANSIDE BOULEVARD CONCEPTUAL PLAN

DWG. NO. 4

SCALE: | SIZE: 11"x17" | SHEET 4 OF 6

DESIGNED: EH | DRAWN: JS | CHECKED: EH | DATE: FEB. 23, 2007



1. RECONSTRUCT EAST MEDIAN WITH 6" MIN. CURBS (CITY)
2. RECONSTRUCT WEST MEDIAN WITH 6" MIN. CURBS (AMTRAK)
3. DEMOLISH AND REMOVE EXISTING SIDEWALK (CITY)
4. DEMOLISH AND REMOVE EXISTING SIDEWALK (AMTRAK)
5. CONSTRUCT NEW SIDEWALK (CITY)
6. CONSTRUCT NEW SIDEWALK (AMTRAK)
7. RELOCATED NO. 8 (AMTRAK)
8. RELOCATED NO. 9 (AMTRAK)
9. RELOCATED NO. 9 (CITY)
10. PROPOSED NO. 9 PEDESTRIAN GATE AND SWING GATE (CITY)
11. EXISTING NO. 8 TO REMAIN
12. ALTERNATE: REMOVE EXISTING TRESS AND VEGETATION IN LIEU OF CONSTRUCTING ITEM (10) (CITY)
13. PROPOSED DETECTABLE WARNING STRIP (AMTRAK)

NOTE: SEE SHEET 6 FOR NO. 9 PEDESTRIAN GATE AND SWING GATE DETAILS

REV.	DATE	DESCRIPTION	BY	APP.

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CITY OF OCEANSIDE, CA
RAILROAD QUIET ZONE

CASSIDY STREET
CONCEPTUAL PLAN

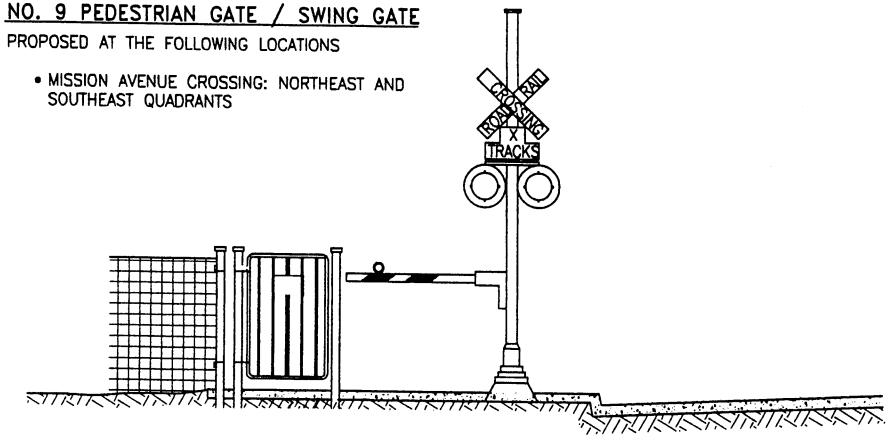
DWG. NO. 5

SCALE:	SIZE: 11"x17"	SHEET 5 OF 6	
DESIGNED: EH	DRAWN: JS	CHECKED: EH	DATE: FEB. 23, 2007

NO. 9 PEDESTRIAN GATE / SWING GATE

PROPOSED AT THE FOLLOWING LOCATIONS

- MISSION AVENUE CROSSING: NORTHEAST AND SOUTHEAST QUADRANTS

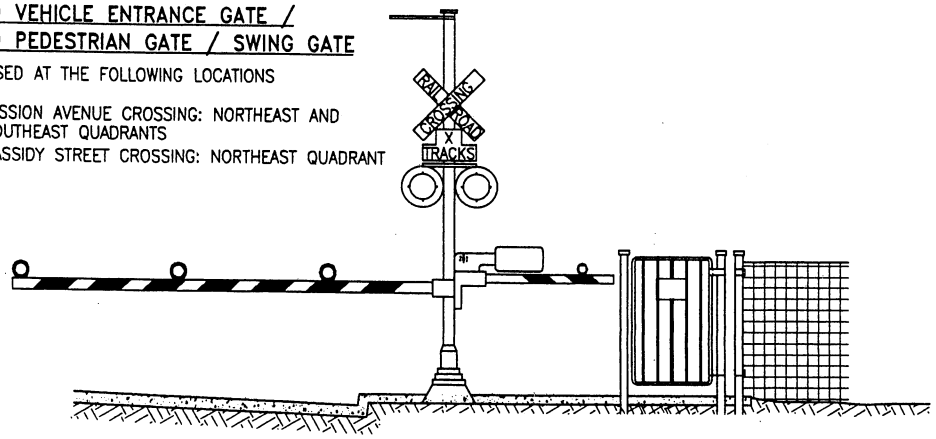


ELEVATION

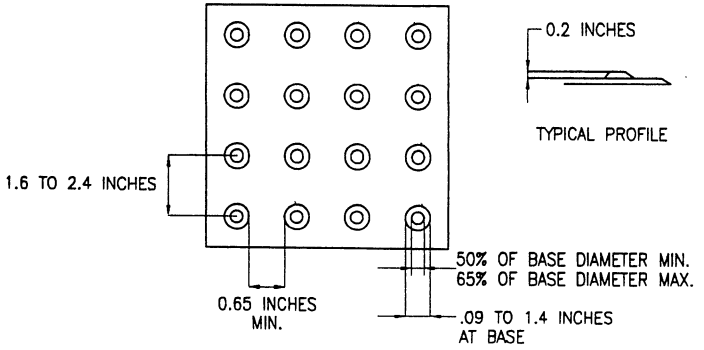
NO. 9 VEHICLE ENTRANCE GATE / NO. 9 PEDESTRIAN GATE / SWING GATE

PROPOSED AT THE FOLLOWING LOCATIONS

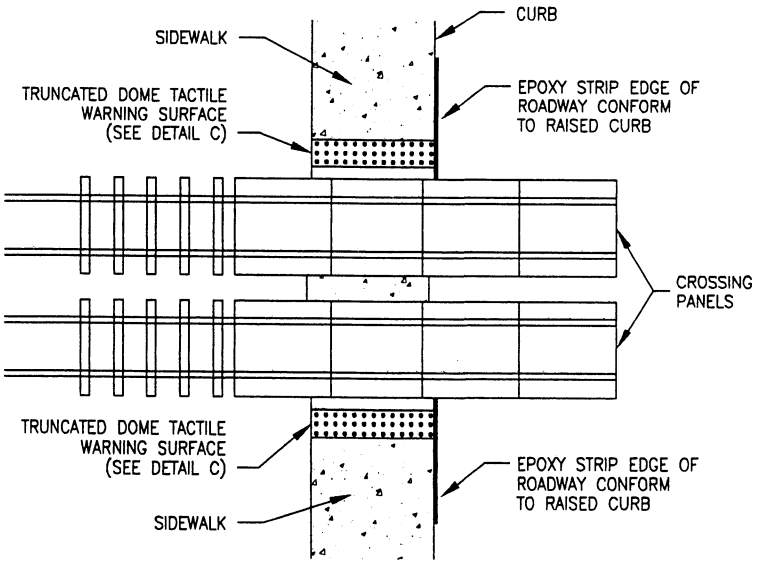
- MISSION AVENUE CROSSING: NORTHEAST AND SOUTHEAST QUADRANTS
- CASSIDY STREET CROSSING: NORTHEAST QUADRANT



ELEVATION



DETAIL C



DETECTABLE WARNING STRIP ON SIDEWALK APPROACHING CROSSING

REV.	DATE	DESCRIPTION	BY	APP.

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CITY OF OCEANSIDE, CA
RAILROAD QUIET ZONE

DETAILS
CONCEPTUAL PLAN

DWG. NO. 6

SCALE:	SIZE: 11"x17"	SHEET 6 OF 6	
DESIGNED: EH	DRAWN: JS	CHECKED: EH	DATE: FEB. 23, 2007