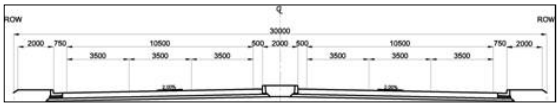
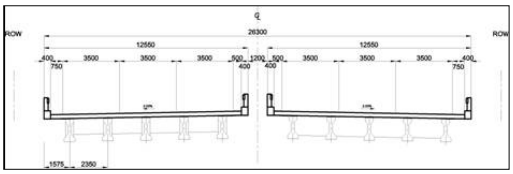
Typical Cross Section for North-South Road

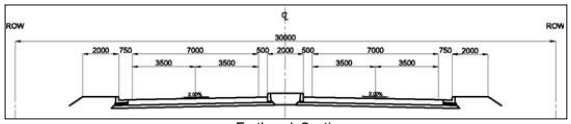


Earthwork Section

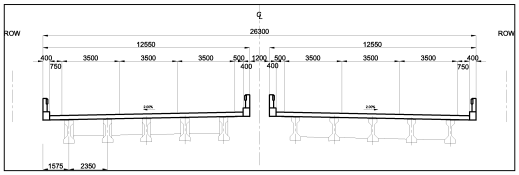


Viaduct/Bridge Section

Typical Cross Section for Daang Hari (East-West) Road

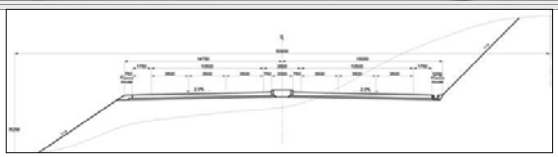


Earthwork Section

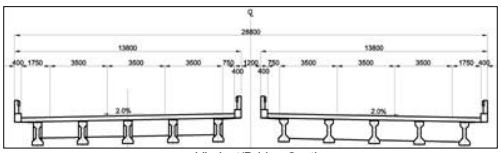


Viaduct/Bridge Section

Typical Cross Section for CALA Expressway

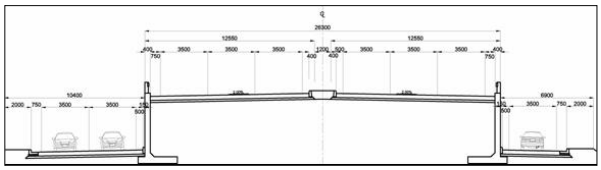


Earthwork Section

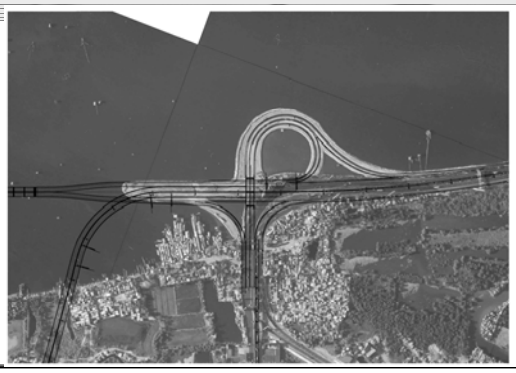


Viaduct/Bridge Section

Side Road Arrangement at Grade Separation Intersection



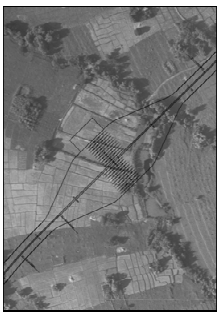
Proposed Bacoor – Coastal Interchange (NS-1)



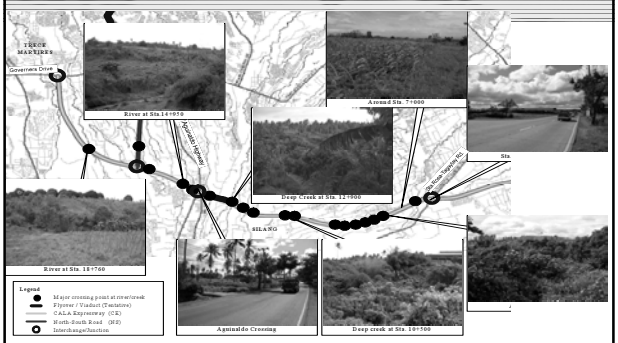
Toll Plaza

NS-2

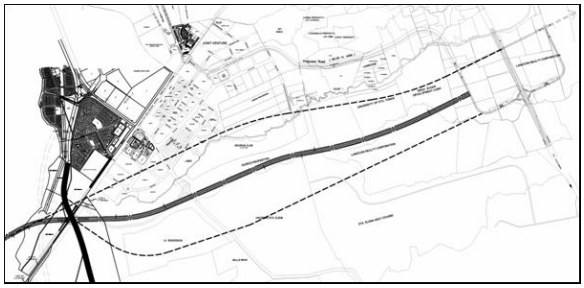
NS-3



Photos showing Particular Issues along CALA Expressway

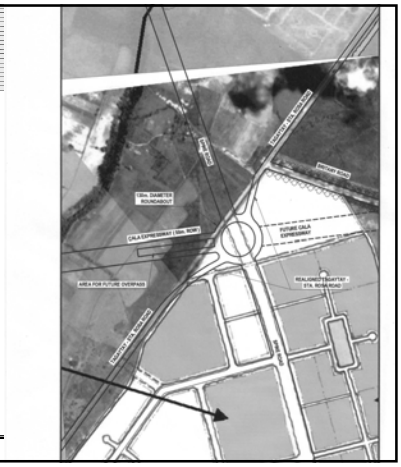


Proposed Alternative Alignment of CE-1 Section

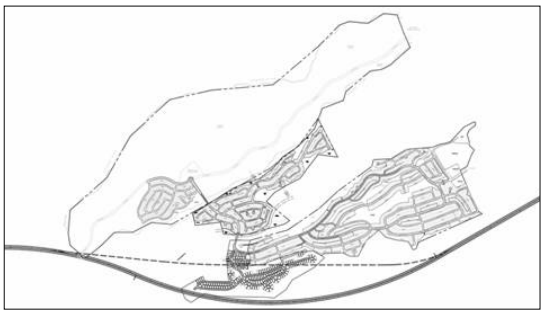


Alternative Plan for CE- 1

Construction of CALA Expressway to SLEX is deferred.



Alignment Adjustment at Westgrove Area of Ayala Land (CE-1)



Estimated Project Cost

Unit: Million Peso

Road	Section	Construction	Engineering	ROW	Project Administration	Total
NS	NS1	1,595	191	107	54	1,947
	NS2	456	55	0	15	526
	NS3	1,968	236	444	77	2,725
	Subtotal	**4,019**	**482**	**551**	**146**	**5,198**
	NS4	3,325	399	410	119	4,253
	NS5	3,464	415	408	123	4,410
	Subtotal	**6,789**	**814**	**818**	**242**	**8,663**
	Total (NS1-NS5)	**10,808**	**1,296**	**1,369**	**388**	**13,861**
DH	DH3	580	70	0	18	668
	DH4	1,755	211	419	69	2,454
	Total (DH3-DH4)	**2,335**	**281**	**419**	**87**	**3,122**
CE	CE1	450	54	85	17	606
	CE2	4,841	580	284	163	5,868
	CE3	1,614	194	47	53	1,908
	CE4	983	119	346	42	1,490
	Total (CE1-CE4)	**7,888**	**947**	**762**	**275**	**9,872**
Grand Total (Base Case)		**21,031**	**2,524**	**2,550**	**750**	**26,855**
Grand Total[1)]		**21,031**	**2,524**	**2,219**	**740**	**26,514**
Grand Total[2)]		**24,074**	**2,889**	**2,550**	**847**	**30,360**

1) The case when One-Asia provides the land (a part of NS3 and NS4) for free

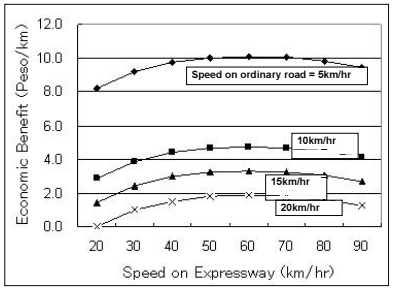
2) The case of planning full access control road for the section between NS1 and NS3

Current Toll Rate of Expressways in Manila

(Peso/km)

Toll Road		Class 1 Car/Jeepney	Class 2 Truck/Bus	Class 3 Truck/Trailer
SLEX	at Grade	2.49	6.23	7.47
NLEX	at Grade	2.49	6.23	7.47
Coastal Road	at Grade	2.73	5.45	8.18
Skyway	at Grade	4.29	8.57	12.86
	Elevated	12.14	24.29	36.43

User's Benefit by Using Expressway



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Willingness to Pay for Travel Time Reduction

	Ave. (Peso)	Median (Peso)	Time of Value (Peso /Min.)	Sample
Car/Owner	23.01	20.64	**1.31**	766
Jeep/Van	18.21	15.76	**1.04**	336
Truck/Cargo van	28.88	27.35	**1.65**	101
Total	22.28	19.86	**1.27**	1,203

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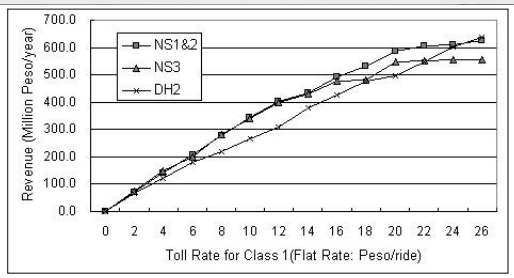
Relationship of Toll Revenue and Toll Rate



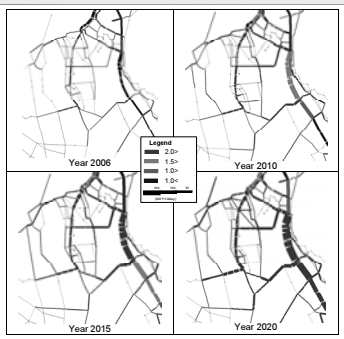
Recommended Toll Rate

P18 / car entry, or

P2.4 – P2.9 / km

21

Traffic Distribution (Do-Nothing Case)



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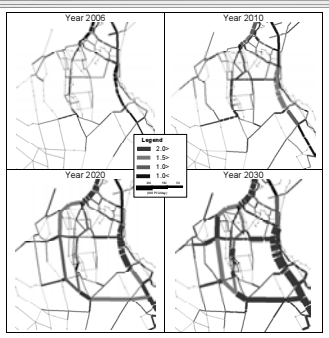
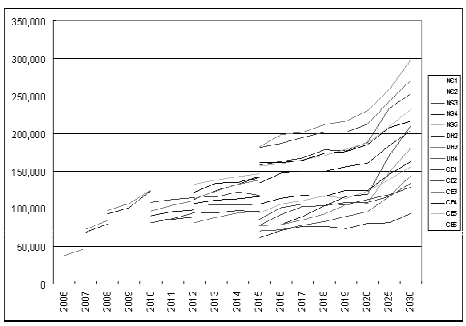
Traffic Distribution (Base Case)



23

Estimated Traffic Volume by Section and by Year (Base Case)



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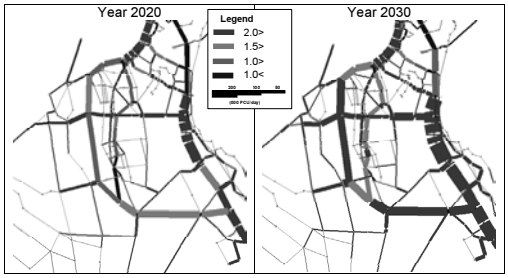
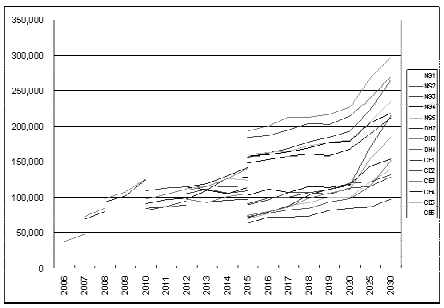
Traffic Distribution (NS4 and NS5 tolled)



25

Estimated Traffic Volume by Section and by Year (NS4 and NS5 tolled)



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Economic Evaluation

NS Group

Evaluation Indicator	Unit	NS-1&2		NS-3		NS-1,2&3		NS-1to 5	
		Minus	Plus	Minus	Plus	Minus	Plus	Minus	Plus
E-IRR	%	82.0	80.1	41.5	38.6	35.9	38.0	24.1	22.9
NPV	P million	16032.2	14895.6	4835.6	3573.9	5114.1	10541.8	5523.8	4485.9
B/C	-	11.7	10.9	3.7	3.0	2.5	4.2	1.7	1.6

DH Group

Evaluation Indicator	Unit	DH-2		DH-4	
		Minus	Plus	Minus	Plus
E-IRR	%	-	-	66.4	66.7
NPV	P million	17234.4	15928.8	10114.6	9845.6
B/C	-	19.0	17.6	11.6	11.3

CE Group

Evaluation Indicator	Unit	CE-1to4	
		Minus	Plus
E-IRR	%	33.7	34.7
NPV	P million	9946.8	8970.5
B/C	-	3.6	3.3

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Financial Analysis

ASSUMPTIONS

- Inflation Rate 4.5%
- Exchange Rate: Forex deviation 6.25%
- Days in Year=340 days, and
- Tax: RCIT 35%
- Routine Maintenance Cost: 0.3% of Project Cost p.a.
- Periodic Maintenance Cost 20% of Project Cost every 20 years which is equivalent to 0.44% p.a. under 8% of annual interest rate
- Operation Cost: 12% of annual gross revenue
- Other costs such as:
  - Pre-operating Cost
  - Income Tax and Local Government Tax
  - Corporate Overhead are ignored at this stage of Project F-IRR estimation.

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Project IRR in Base Case

Project	F-IRR (%)		NPV	B/C
	Real	Nominal	US$ million	-
NS-1&2	21.9	26.6	1,489.1	1.68
NS-3	17.9	22.6	1,115.4	1.45
NS-4	13.2	17.9	253.1	1.09
NS-5	11.9	16.6	-21.2	0.99
NS-1,2&3	19.2	23.9	2,495.0	1.54
NS-1,2,3,4&5	15.5	20.2	2,765.7	1.26
NS-4&5	12.1	16.8	42.8	1.01
DH-2	39.5	44.2	3,180.8	2.72

Note: NPV and B/C are in real term without inflation.

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Influence of CE Roads on F-IRR of NS Roads

Project	Base Case	Delay of CE-5&6		All CEs tolled at P 2.49 /km
		Open in 2020	Never implemented	
NS-1&2	21.9	23.8	24.8	23.8
NS-3	17.9	19.5	20.4	20.3
NS-4	13.2	14.3	15.3	13.6
NS-5	11.9	14.5	17.1	12.8
NS-1,2&3	19.2	21.0	21.9	21.4
NS-1,2,3,4&5	15.5	17.5	18.9	16.8
NS4&5	12.1	13.3	15.2	12.4

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Implementation Arrangement

BASIC OPTIONS EXPLORED:

1. *Conventional public sector financing & dev't*
2. *Through PSP, kickstart from NDC*

DPWH Views on ROW+BOT tendering

CONVERGING VIEWS

- NS-Way to be built as tolled expressway thru PPP scheme
- Rest of the Target Roads to be built as open public roads thru conventional public sector financing w/ODA-support

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Sub-Options on NS-Way Implementation

1. Bid Packaging
   - Stage 1 (NS1 to NS3) separate from Stage 2
   - Combine Stages 1 & 2 (NS1 to NS5)

Separate stage 1 from stage 2
- Stage 2 not yet viable, will likely lead to failure
- To avoid delay, as stage 1 wont become dependent to readiness of stage 2

2. Composition of SPC
   - Winning Bidder – all private sector players
   - Participation of PIC in the winning bidder or toll concessionaire

With PIC participation
- Minimum – funding for ROW, after bid, during DE
- Plus: Equity, Loan, or JVA with SPC of winning bidder (as determined during the bidding)

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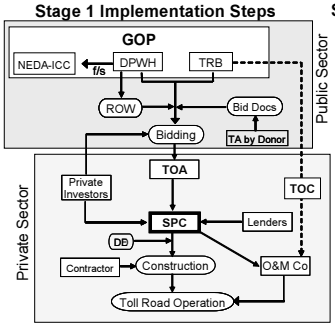
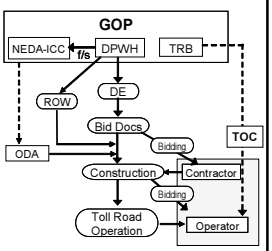
Implementation Steps for NS-Way

Stage 1 Implementation Steps



Stage 2 Implementation, w/ODA



Avoiding the STAR Expressway Trap

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THANK YOU

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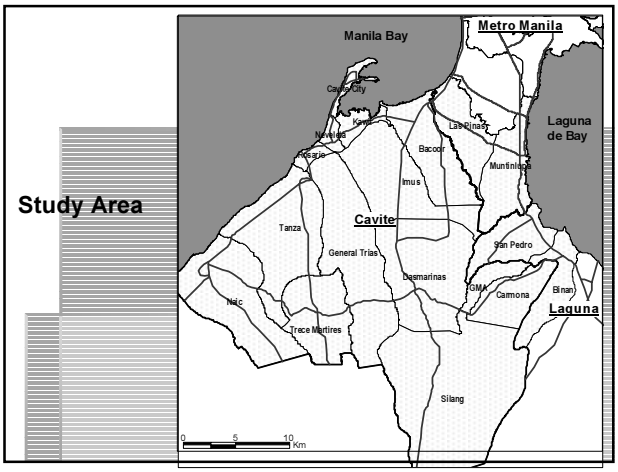
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS(DPWH)
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

THE FEASIBILITY STUDY AND IMPLEMENTATION SUPPORT ON THE CALA EAST-WEST NATIONAL ROAD PROJECT
8th Stakeholders' Meeting

Session 2
Environmental and Social Aspects

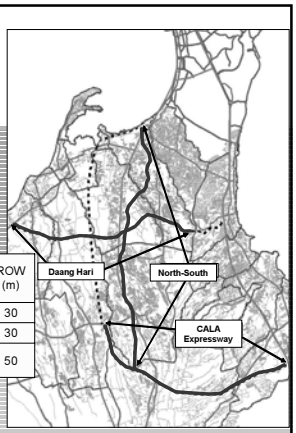
8 September 2006



Target Project

Proposed Structure of Target Project

Road Name	Road type	Length (km)	Design Speed (km/h)	No. of Lanes	ROW (m)
North-South	Highway	27.8	60	6	30
Daang Hari	Highway	21.0	60	4	30
CALA Expressway	Expressway	22.7	100	6	50



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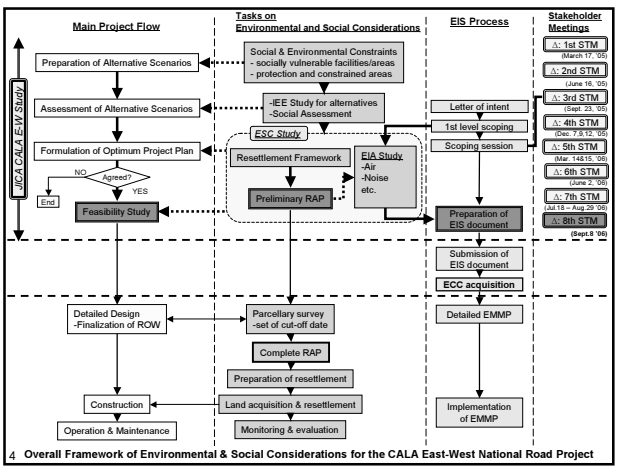


4 **Overall Framework of Environmental & Social Considerations for the CALA East-West National Road Project**

Activities on Environmental & Social Considerations through the JICA Study

1. Environmental baseline surveys for study area (incl. field measurements of air quality, noise level, and river water quality)
2. EIA Study for proposed projects
   a. Environmental scoping (incl. official scoping process under EIS system)
   b. Collection of baseline information incl. field measurements of air quality, noise level, and river water quality
   c. Social surveys
      - Focus Group Discussion
      - Perception survey (socio-economic survey)
      - Household inventory survey for resettlement
   d. Assessment of environmental and social impacts; preparation of environmental management and monitoring plan (EMMP)
   e. Preparation of EIS report
   f. Preparation of preliminary resettlement action plan (Pre-RAP)
3. Series of the stakeholders' meetings
4. Information collection from and coordination with relevant agencies and LGUs
5. Examinations of road alignments from environmental & social considerations viewpoints by using mapping information such as GIS and aerial photograph

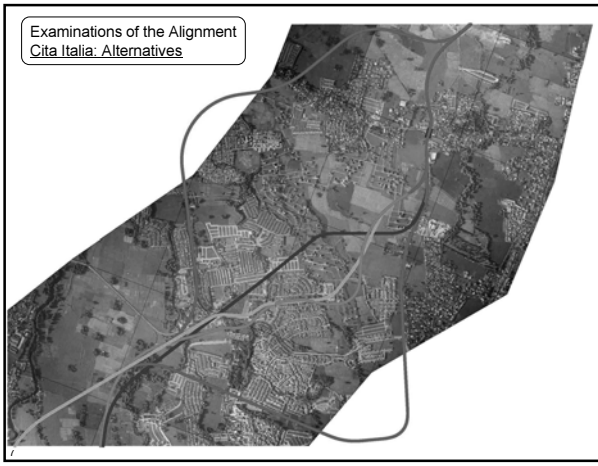
5

1. Critical Areas and Measures

1. Examination of alignment
2. Installation of measures

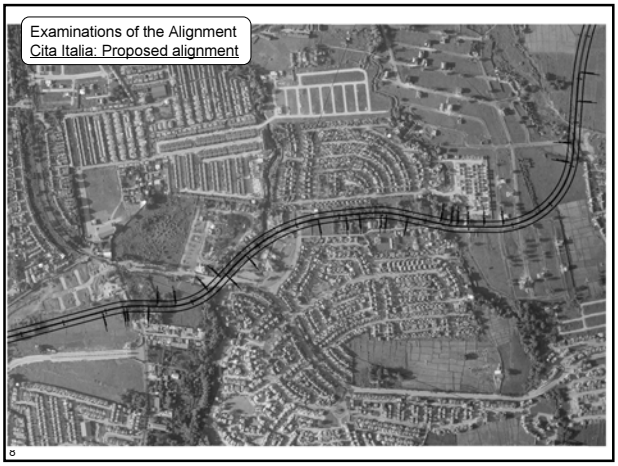
6

Examinations of the Alignment
Cita Italia: Alternatives



7

Examinations of the Alignment
Cita Italia: Proposed alignment



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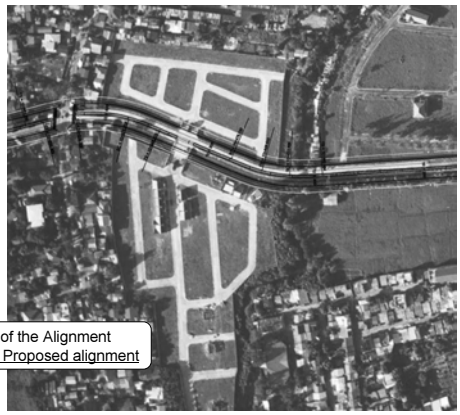

Examinations of the Alignment
Crystal Place: Proposed alignment

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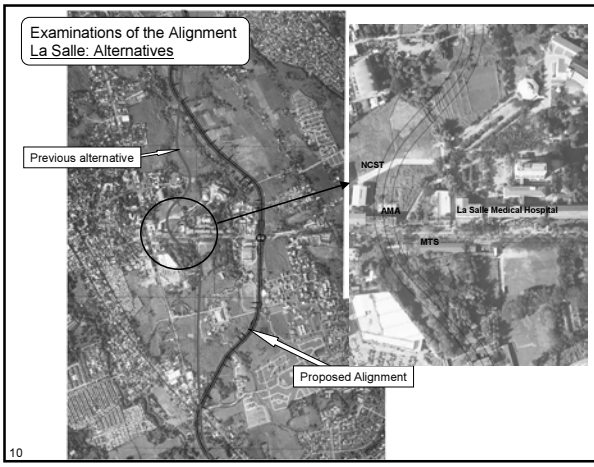
Examinations of the Alignment
La Salle: Alternatives



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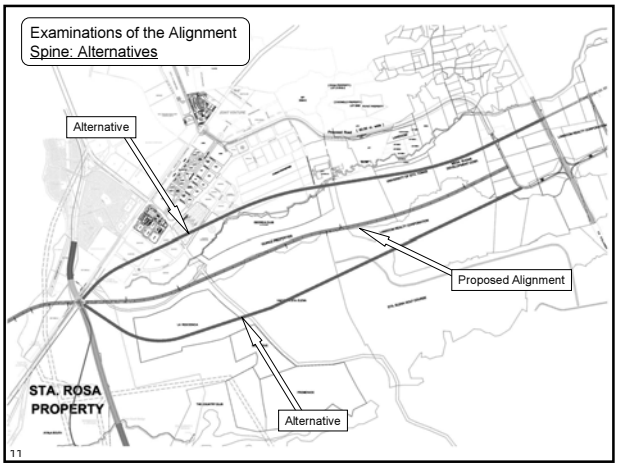
Examinations of the Alignment
Spine: Alternatives



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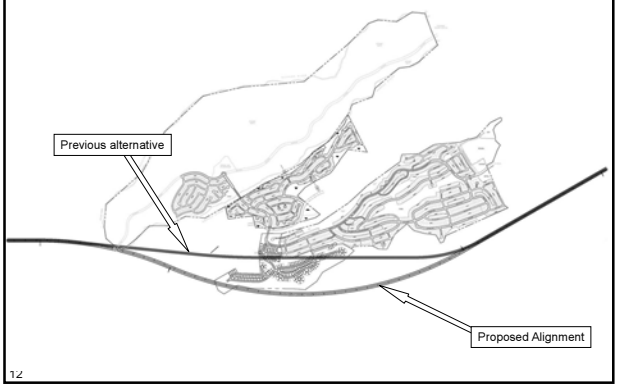
Examinations of the Alignment
Westgrove: Alternatives



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