

Valenzuela

Individual Information Sheets for the Traffic Bottleneck Points

- VL-01 Karuhatan / A Pablo / MacArthur Hwy
- VL-02 MacArthur Hwy / A Fernando St
- VL-03 MacArthur Hwy / P Valenzuela St
- VL-04 MacArthur Hwy / Tamaraw Hills
- VL-05 Fatima Ave / Serrano St
- VL-06 MacArthur Hwy / Poblacion Road



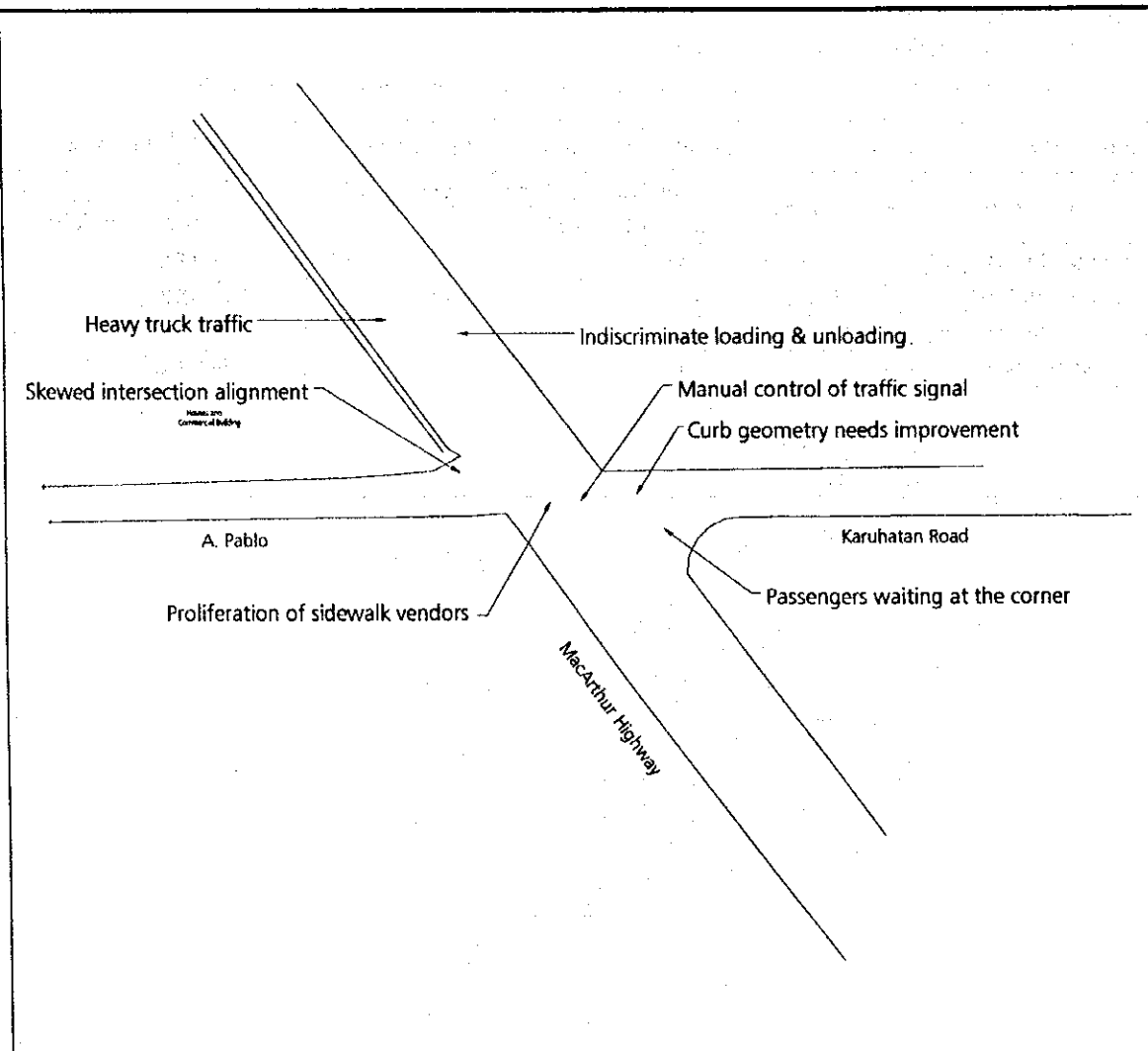
Name	Karuhatan / A. Pablo / MacArthur Hwy				Code	VL-01	
Sheet	Summary of Observations				LGU	Valenzuela	
Traffic Conditions	<ol style="list-style-type: none"> 1) Heavy pedestrian movements due to the market and the transfer to the public transport plying Karuhatan. 2) Passengers of jeepneys and buses board and alight at locations clearly marked as forbidden. 3) No clear marking of pedestrian lanes. 4) Pedestrians along the Karuhatan approach are sometimes forced to use the road because of the narrowness of the sidewalks. 5) Total traffic on MacArthur is 9 times the traffic volume on Karuhatan. 						
	<ol style="list-style-type: none"> 1) A four-leg but skewed intersection located at Valenzuela. 2) The main road, MacArthur Highway has four undivided lanes and paved with concrete. 3) Pablo St. measures only 4.00 meters while Karuhatan Road is 5.25 meters wide. 4) All street corners have substandard radii. 5) No clear marking of pedestrian lanes. 6) Unpaved shoulder located at the corner of A1 and A2 along MacArthur highway. Also, shin-high "walls" observed at this corner. 7) Narrow sidewalks along Karuhatan. 8) Construction work on Karuhatan for drainage improvement and flood mitigation. 						
Signalization	Manual	Pavement Markings		With markings	Peak	8:00-9:00	
Approach	Dimensions	Peak Hour Traffic Volumes (PCUs)				% Public Transport	Pedestrian Volume
		Left	Through	Right	Total		
A1: McArthur Hwy (N)	15.0m	65	1460	19	1545	45.15%	
A2: Karuhatan (E)	6.0m	159	22	180	361	17.15%	
A3: McArthur Hwy (S)	15.0m	4	1134	97	1235	49.79%	
A4: A Pablo (W)	5.0m	38	23	5	66	25.71%	
Total		266	2,639	301	3,207		
Passenger Flows							
<p>Peak Hour Volumes (PCUs) Valenzuela vl-01 Karuhatan / A Pablo / McArthur Hwy</p>							

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Small Scale Traffic Improvement Measures for Metro Manila

Name	Karuhatan / A. Pablo / MacArthur Hwy	Code	VL-01
Sheet	Analysis	LGU	Valenzuela

- 1) Pedestrians along the Karuhatan approach are sometimes forced to use the road because of the narrowness of the sidewalks.
- 2) Current construction activity for the improvement of drainage is constricting the entry to Karuhatan. Flooding has been a problem during heavy rains due to poor drainage.
- 3) Unpaved shoulder does not allow jeepneys to leave the travel-way or at least allow following vehicles to easily overtake.
- 4) Some shin-high walls slightly restrict the easy movement of pedestrians from the market who are crossing MacArthur Highway.
- 5) Cycle times being used exceed 3 minutes (based on observations) and would need to be shortened.
- 6) Cycle allocations should be based on traffic volumes. Between 50% and 60% of all green times should be given to the north-south and south-north traffic flow on MacArthur Highway.



Name	Karuhatan / A. Pablo / MacArthur Hwy	Code	VL-01
Sheet	Proposed Improvements	LGU	Valenzuela
Engineering	<ol style="list-style-type: none"> 1) Provide lane markings as well as zebra crossings. 2) Modify signal phasing into 4, as shown below, with one cycle limited to 2 minutes. 3) Install traffic signal controller. 4) Modify turning radii. 5) Place turning movement guide markings , such as left-turn arrows. 6) Designate loading / unloading or boarding / alighting areas. 7) Pedestrian barriers and sidewalk improvements already done on A. Pablo by Valenzuela / Barangay government. Additional barrier or bollard along MacArthur Highway required. 		
Enforcement	<ol style="list-style-type: none"> 1) Enforce anti-jaywalking strictly. 2) Apprehend public transport stopping (allowing boarding and alighting) at non-designated areas. Pedestrians who get on or off at areas other than designated can be charged with jaywalking. 		

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LOCATION : VL-01: Karuhatan / A. Pablo / MacArthur Hwy (VALENZUELA)
(cost summary based on actual implementation)

A. Pavement Markings	<u>Unit</u>	<u>Quantity</u>	<u>Unit Cost</u>	<u>Total Cost</u>
<i>Longitudinal Lines</i>				
1. Center Lines				
a.) Broken Lines, 100 or 150 mm width, 3m length 4.50 m gaps	l.m.	547.00	90.00	49,230.00
b.) Solid White Lines, 150mm width	l.m.	-	-	-
2. Lane Lines (100 or 150mm width)				
a.) Solid Lines, w = 150mm	l.m.	16.80	60.00	1,008.00
b.) Broken Lines, w = 150mms, 200mm width	l.m.	-	-	-
3. Barrier Lines				
a.) Unbroken Double Yellow Lines (100 or 150mm width)	l.m.	-	-	-
b.) Single Yellow Line with broken White Lines (100-150mm)	l.m.	120.00	90.00	10,800.00
4. Edge Lines				
a.) Pavement Edge (Shoulders)	l.m.	-	-	-
b.) Median Edge	l.m.	-	-	-
5. Continuity Lines				
a.) Pavement Edge (Shoulders)	l.m.	-	-	-
b.) Median Edge	l.m.	-	-	-
6. Transition Line				
a.) Pavement Edge (Shoulders)	l.m.	-	-	-
b.) Median Edge	l.m.	-	-	-
<i>Transverse Lines</i>				
1. Stop Lines (Solid Lines) white, width = 450mm	l.m.	30.00	270.00	8,100.00
2. Give Way (Yield Lines)	l.m.	-	-	-
3. Pedestrian Crossing Markings				
a.) Zebra Crossing (Non-Signalized), width = 300mm	l.m.	-	-	-
b.) Cross Walks (Signalized), width = 300mm	l.m.	245.00	180.00	44,100.00
<i>Other Lines</i>				
1. Turn Lines (Broken Lines)	l.m.	-	-	-
2. Parking Bay Lines				
a.) Parallel Bays, width = 100mm	l.m.	-	-	-
b.) Angle Bays	l.m.	-	-	-
3. Painted Median Islands	l.m.	-	-	-
4. Bus and PUJ Lane Markings	l.m.	-	-	-
5. Channelized Junction Pavement Marking	l.m.	-	-	-
6. Yellow Box Line, w = 200mm	l.m.	-	-	-
<i>Other Markings</i>				
1. Approach Markings to Island and Obstructions	l.m.	-	-	-
2. Chevron Markings	l.m.	-	-	-
3. Curb Markings to Parking Restrictions	l.m.	-	-	-
4. Approach to Railroad Crossings	l.m.	-	-	-
5. Loading/Unloading Zone Lines, (w=200mm)	l.m.	-	-	-
<i>Messages and Symbols</i>				
1. Messages				
a.) Give Way Symbol	pcs.	-	-	-
2. Symbols				
a.) Give Way Symbol	pcs.	-	-	-
b.) Pavement Arrows				
1.) Through Arrow = 1.21 sq.m. / each	pcs.	-	-	-
2.) Combined Arrow = 2.44 sq.m. / each	pcs.	4.00	1,575.00	6,300.00
3.) Turn Arrow = 1.46 sq.m. / each	pcs.	-	-	-
c.) Numerals	pcs.	-	-	-
B. Signs				
1. PUJ Loading/Unloading Sign	pcs.	-	-	-
2. No Loading/Unloading Sign	pcs.	2.00	3,910.00	7,820.00
3. Tricycle Loading/Unloading Sign	pcs.	-	-	-
4. No Double Parking Area	pcs.	-	-	-
C. Other Works				
1. Installation of Signal Controller	l.s.	1.00	75,000.00	75,000.00
2. Provide Pedestrian Railing (Steel Railing) 6m/pc	l.m.	-	-	-
TOTAL				202,358.00
TOTAL COST				202,358.00

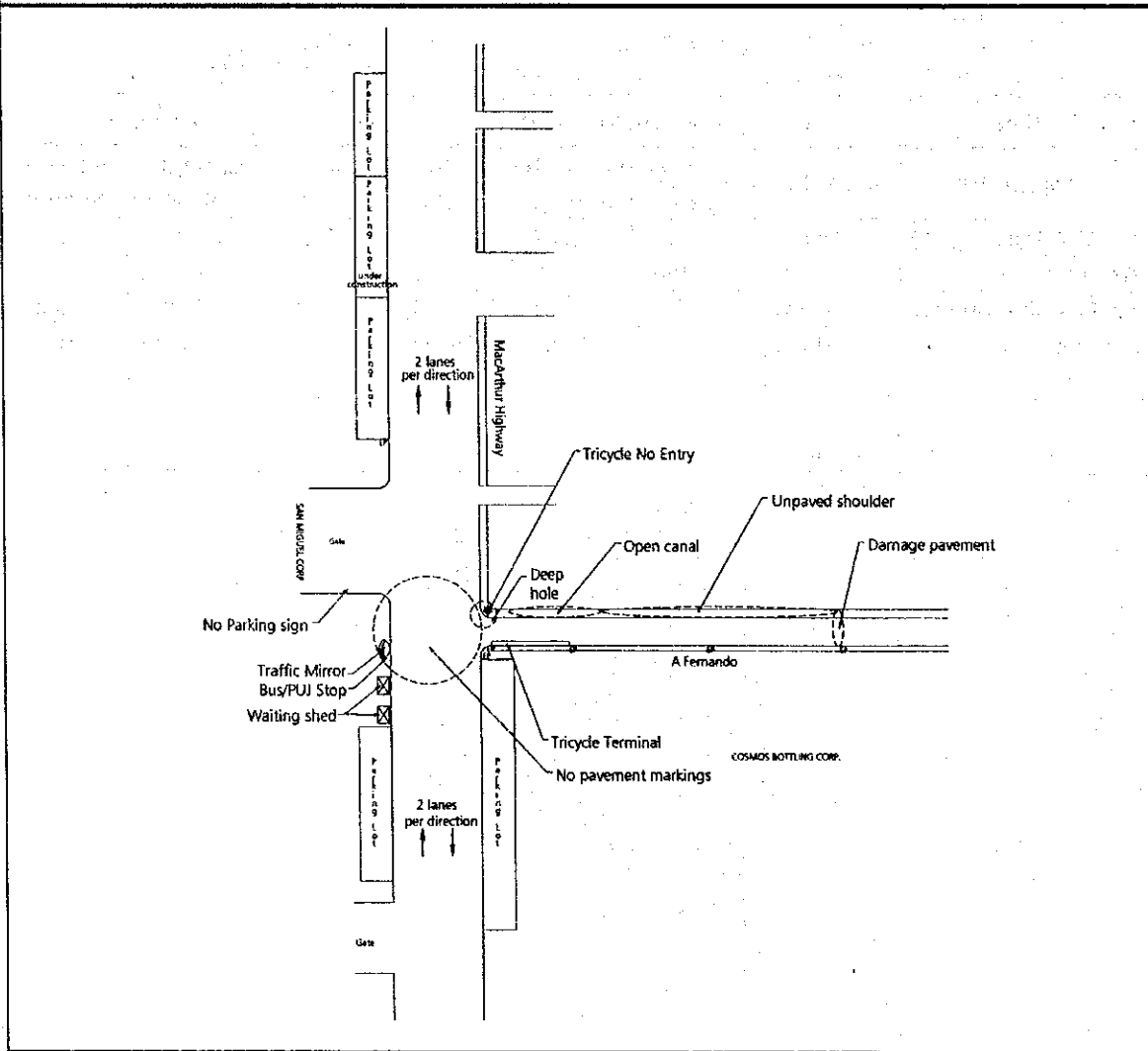
Name	MacArthur Hwy /A Fernando St			Code	VL-02		
Sheet	Summary of Observations			LGU	Valenzuela		
Traffic Conditions	<ol style="list-style-type: none"> 1) Unsignalized T-intersection. 2) Major traffic is on MacArthur Highway. 3) Tricycles waiting along A. Fernando on the exit lane near the intersection are fairly well-ordered/well-parked. 4) Light pedestrian traffic. 5) A few vehicles are parked on road. 						
Physical Conditions	<ol style="list-style-type: none"> 1) Concrete pavement on both roads. 2) A. Fernando is a relatively narrow two-lane road, further narrowed by the tricycles. 3) No pavement markings along A. Fernando nor MacArthur. 4) Sidewalk on the side of A. Fernando exit lane. 5) Unpaved, not raised, sidewalk on side of A. Fernando approach lane, with an intermittently open canal near the intersection approach. 6) Deep hole on the right turning side of intersection approach lane on A. Fernando. 7) Unpaved shoulder to the right of the entry lane on A. Fernando. 8) Damaged pavement with puddling found about 50 meters from the intersection. 9) Waiting shed immediately fronting A. Fernando on the other side of McArthur (southbound lane). 10) Existing safety devices: Dual traffic mirror on the side of the waiting shed. 11) Sign on A. Fernando intersection approach lane, "Tricycle Pedicab, BAWAL PUMASOK". 						
Signalization	None	Pavement Markings	None	Peak	09:00-10:00		
Approach	Dimensions	Peak Hour Traffic Volumes (PCUs)				% Public Transport	Pedestrian Volume
		Left	Through	Right	Total		
A1: McArthur Hwy (N)	14.5m	11	1,922	NA	1,933	32.86%	Light
A2: Fernando	5.0m	156	NA	11	167	22.75%	Light
A3: McArthur Hwy (S)	16.2m	NA	1,408	119	1,526	45.29%	Light
A4: None	None	None	None	None	None	None	None
Total		167	3,329	130	3,626		
Passenger Flows							
<p>Peak Hour Volumes (PCUs) Valenzuela VL-02 MacArthur Highway / A. Fernando</p> <p>The diagram illustrates the intersection of MacArthur Highway and A. Fernando. It shows three approaches: A1 (Northbound on MacArthur Hwy), A2 (Eastbound on A. Fernando), and A3 (Southbound on MacArthur Hwy). Traffic volumes are shown for each approach and direction. For A1, the total volume is 1,933 PCUs, with 11 PCUs from the left and 1,922 PCUs through. For A2, the total volume is 167 PCUs, with 156 PCUs from the left and 11 PCUs from the right. For A3, the total volume is 1,526 PCUs, with 1,408 PCUs through and 119 PCUs from the right. The total volume for all approaches is 3,626 PCUs.</p>							

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Name	MacArthur Hwy /A Fernando St	Code	VL-02
Sheet	Analysis	LGU	Valenzuela

- 1) The open canal forces pedestrians on to the road and constricts vehicular movement on A. Fernando. Although pedestrian traffic is light, this situation is unsafe.
- 2) Damaged pavement (due to narrow excavation across A. Fernando) causes unnecessary slowing of vehicles, and risk to vehicles.
- 3) Present location and orientation of tricycles exposes passengers to the traffic, their loading and unloading into and from the sidecar being immediately facing the carriageway. This is unsafe for the passengers and presents an opportunity for numerous instances of tricycle passengers obstructing traffic on the carriageway.
- 4) Tricycles reduce the capacity of A. Fernando, but there are presently no viable alternative locations to take them off the road.
- 5) Tricycles, being located at the intersection inadvertently cause exiting traffic to take all or part of the opposing lane on Tamaraw Hills road. This would further limit the capacity of the entering lane and cause tie-ups in traffic.



Name	MacArthur Hwy /A Fernando St	Code	VL-02
Sheet	Proposed Improvements	LGU	Valenzuela
Engineering	<ol style="list-style-type: none"> 1) Current unpaved shoulder should be paved and the open canal covered to provide sidewalks. 2) Provide lane markings and zebra markings as indicated. 3) Designate the loading and unloading areas of the tricycles; preferably farther away from the intersection. 4) Install traffic control signages as follows: <ol style="list-style-type: none"> a) "STOP" or yield sign for traffic coming from A. Fernando b) Sign indicating appropriate loading and unloading area for tricycles. 		
Enforcement	<ol style="list-style-type: none"> 1) Tricycles should be oriented such that passengers will load from the sidewalk and not the carriageway. For example, if a sidewalk on the side of the open canal becomes viable, tricycles may be positioned facing the intersection and lined up on the right side of the road, that is, the side where traffic is entering the intersection. 2) Tricycles should be set back at least 10 meters away from the intersection to provide space for vehicles turning into and from MacArthur highway. Strict enforcement that loading and unloading should be at designated areas only. 3) San Miguel Brewery may have to be required to provide a flagman for entering and exiting vehicles; when frequency is high or during peak hours. 		
<p>The diagram illustrates the intersection of MacArthur Highway and A Fernando Street. Key features and proposed actions include:</p> <ul style="list-style-type: none"> MacArthur Highway: A vertical road with a 'Waiting Shed' and 'Keep dual traffic mirror' on the left side. A Fernando Street: A horizontal road crossing MacArthur Highway. Proposed Improvements: <ul style="list-style-type: none"> Application of turn arrows at the intersection. Cover deep hole and open canal making it usable by pedestrians. Pave shoulder repair. Relocate tricycle stand, and mark pavement indicate. Provide line markings up to 100 mbs. away from intersection. Keep "Tricycle/Pedicals BAWAL PUMASOK" sign. Add "STOP" sign. Indicate pedestrian crossings with zebra markings. Other Labels: 'CANAL', 'COSMOS BOTTLING CLUP', and 'A Fernando'. 			

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LOCATION: VL02, A. Fernando Street / MacArthur Highway (VALENZUELA)
(cost summary)

A. Pavement Markings	Unit	Quantity	Unit Cost	Total Cost
<i>Longitudinal Lines:</i>				
1. Center Lines				
a) Broken Line, 100 or 150mm width, 3m length, w = 150mm	l.m	140.00	45.00	6,300.00
b) Solid White Lines, 200mm width	l.m	60.00	150.00	9,000.00
2. Lane Lines (100mm or 150mm width)				
a) Solid Lines, w = 150 mm	l.m	30.00	112.50	3,375.00
b) Broken Lines w= 150mm	l.m	470.00	45.00	21,150.00
3. Barrier Lines				
a) Unbroken Double Yellow Lines (100 or 150mm width)	l.m	-	-	-
b) Single Yellow Line with broken White Lines (100-150mm)	l.m	-	-	-
4. Edge Lines				
a) Pavement Edge (Shoulders)	l.m	-	-	-
b) Median Edge	l.m	-	-	-
5. Continuity Line				
l.m	-	-	-	-
6. Transition Line				
l.m	-	-	-	-
<i>Transverse Lines:</i>				
1. Stop Lines (Solid Lines) white, width = 450 mm	l.m	19.00	337.50	6,412.50
2. Give Way (Yield Lines)	l.m	-	-	-
3. Pedestrian Crossing Markings				
a) Zebra Crossing (Non-Signalized), width = 300mm	l.m	240.00	225.00	54,000.00
b) Cross Walks (Signalized), width = 300mm	l.m	-	-	-
<i>Other Lines:</i>				
1. Turn Lines (broken Lines)				
l.m	-	-	-	-
2. Parking Bay Lines				
a) Parallel Bays, width = 100mm	l.m	-	-	-
b) Angle Bays	l.m	-	-	-
3. Painted Median Islands				
l.m	-	-	-	-
4. BUS and PUJ Lane Markings				
l.m	-	-	-	-
5. Channelized Junction Pavement Marking				
l.m	-	-	-	-
6. Yellow Box Line, w= 150mm				
l.m	-	-	-	-
<i>Other Markings:</i>				
1. Approach Markings to Islands and Obstructions				
l.m	-	-	-	-
2. Chevron Markings				
l.m	-	-	-	-
3. Curb Markings for Parking Restrictions				
l.m	-	-	-	-
4. Approach to Railroad Crossings				
l.m	-	-	-	-
5. Diagonal Markings on Sealed Shoulders				
a) Outline, 150mm width	l.m	-	-	-
b) Diagonal Bars, 300mm width	l.m	-	-	-
<i>Messages and Symbols:</i>				
1) Messages				
pcs	-	-	-	-
2) Symbols				
a) Give Way symbol	pcs	-	-	-
b) Pavement Arrows				
1) Through Arrow = 1.21 sq.m / each	pcs	-	-	-
2) Combined Arrow = 2.44 sq.m / each	pcs	-	-	-
3) Turn Arrow = 1.46 sq. m / each	pcs	-	-	-
c) Numerals	pcs	-	-	-
B. Signs				
1. No Parking Sign	Units	1.00	2,716.00	2,716.00
2. Pedestrian Crossing Sign	Units	3.00	3,850.00	11,550.00
3. Stop Sign	Units	1.00	2,718.00	2,718.00
4. Directional Sign	Units	-	-	-
5. Bus / PUJ Stop Sign	Units	-	-	-
C. Other Works				
1. Reprogramming of Traffic Signal	l.s.	-	-	-
2. Pedestrian Steel Railing	l.m.	-	-	-
3. Sidewalk Improvement along A. Fernando St.				
a) Excavation & Subgrade Preparation	l.m	100.00	49.50	4,950.00
b) 4" Concrete Sidewalk	l.m	100.00	395.00	39,500.00
4. Repair Damaged Pavement along A. Fernando St.				
a) Excavation & Subgrade Preparation	sq.m	40.00	65.25	2,610.00
b) 8" Concrete Pavement	sq.m	40.00	790.00	31,600.00
TOTAL				195,881.50
Contingencies, 5%				9,794.08
CMS, 10%				19,588.15
Miscellaneous (fees, permits, etc), 5%				9,794.08
Govt. Supervision, 2%				3,917.63
TOTAL COST				238,975.43

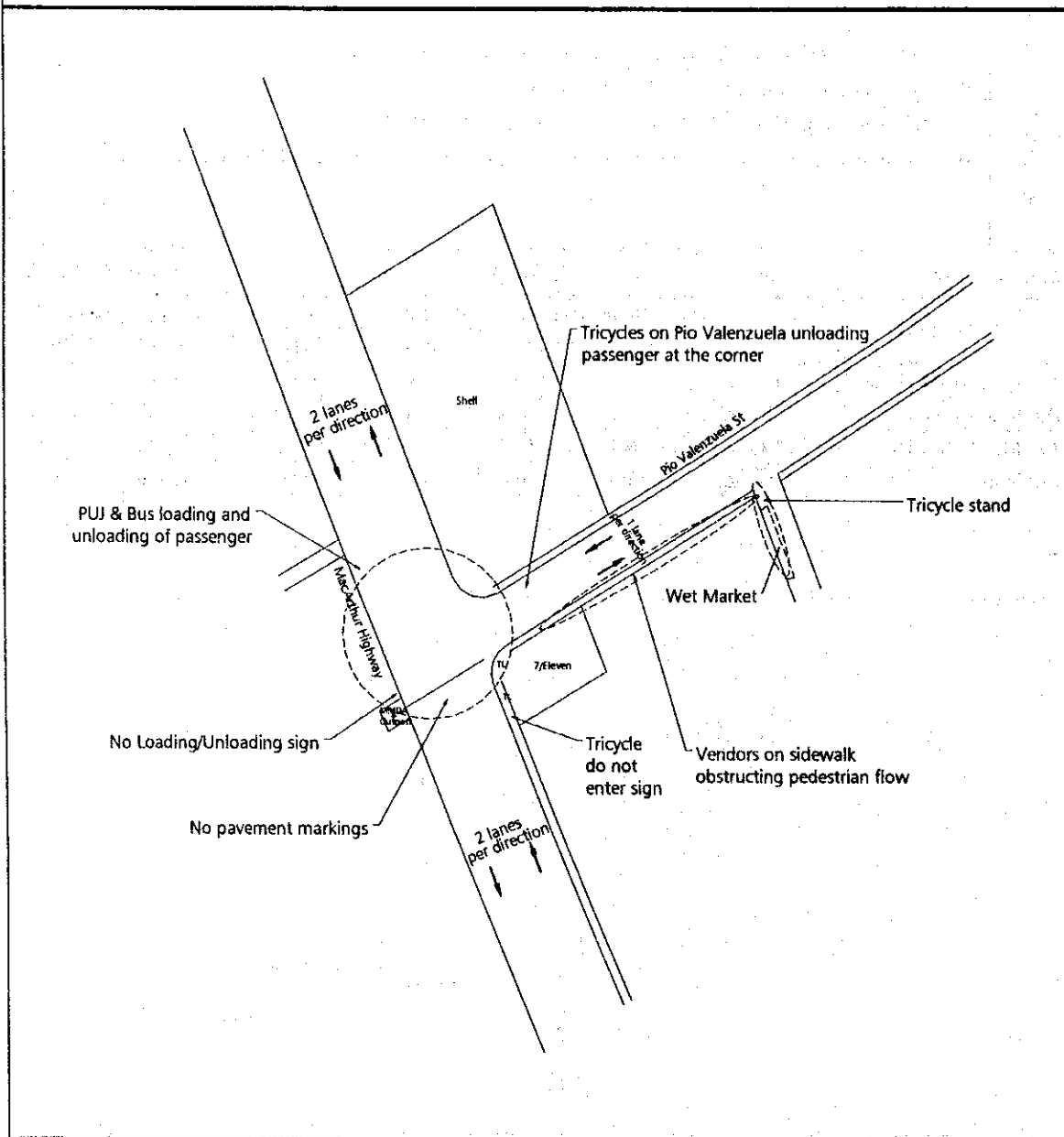
Name	MacArthur Hwy / P Valenzuela St			Code	VL-03		
Sheet	Summary of Observations			LGU	Valenzuela		
Traffic Conditions	<ul style="list-style-type: none"> 1) Unsignalized T-intersection. 2) The tricycle terminal has been established inside a minor road (apparently De Guia) off Pio Valenzuela Street. 3) Some vendors on sidewalk obstruct pedestrian flow. 4) Several vehicles park on road. 5) Some pedestrians use the road. 						
	Physical Conditions	<ul style="list-style-type: none"> 1) There are no lane markings on either of the intersecting roads. 2) Pavement in good condition on both roads. 3) Relatively high sidewalk (approx. 20 cm) on Pio Valenzuela. 4) Convenience store at the Southeast corner, and a gasoline station at the Northeast corner. 					
Signalization		None	Pavement Markings	None	Peak	07:00-08:00	
Approach	Dimensions	Peak Hour Traffic Volumes (PCUs)				% Public Transport	Pedestrian Volume
		Left	Through	Right	Total		
A1: MacArthur Hwy(N)	14.7m	157	1,770	NA	1,927	60.11	Light
A2: Valenzuela	7.1m	35	NA	282	317	32.28	Moderate
A3: MacArthur Hwy (S)	14.6m	NA	1,073	87	1,160	54.46	Light
A4: None	None	None	None	None	None	None	None
Total		439	2,843	122	3,404		
Passenger Flows							
<p>Peak Hour Volumes (PCUs) Valenzuela VL-03 MacArthur Hwy / P Valenzuela St</p>							

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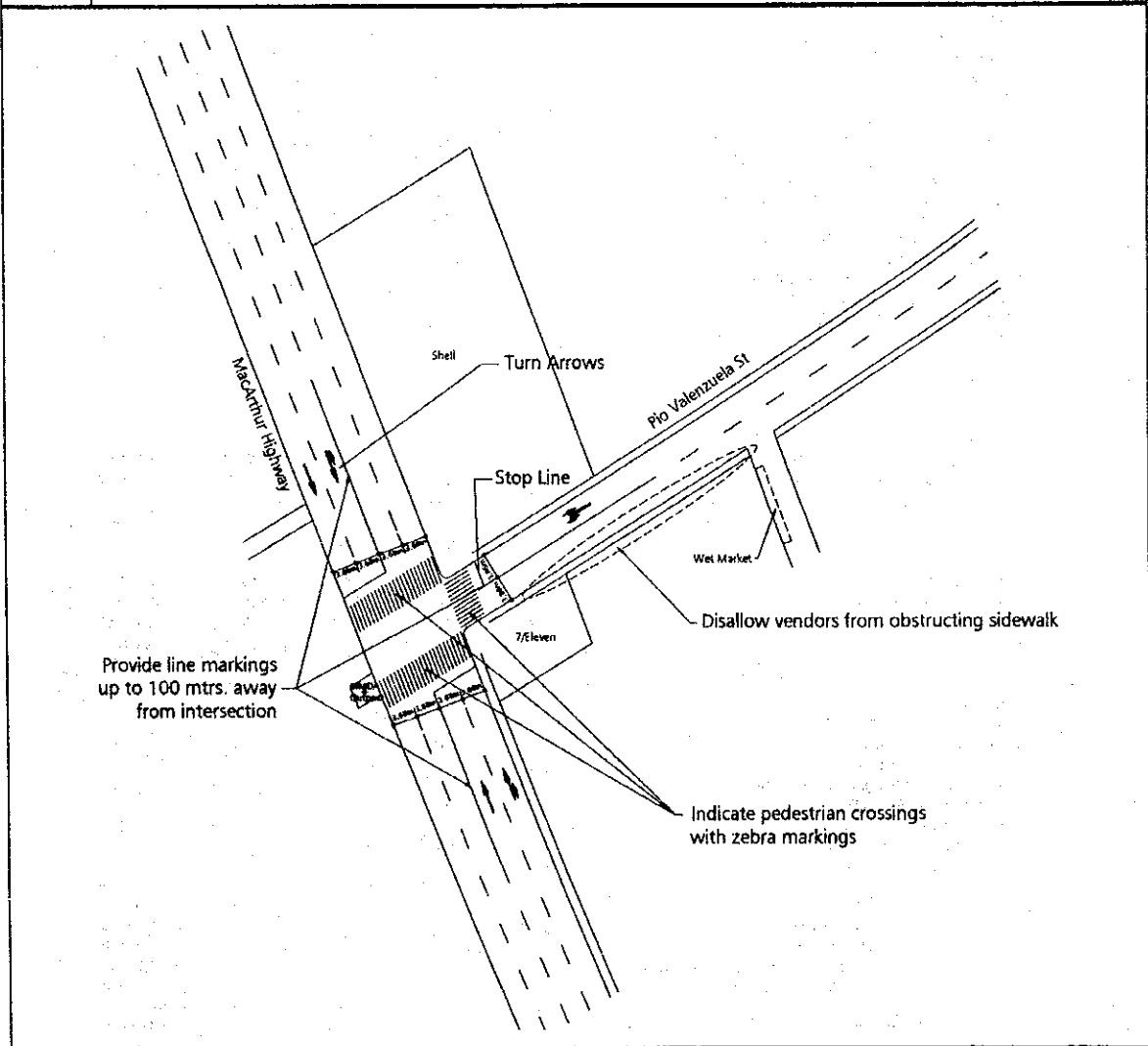
Small Scale Traffic Improvement Measures for Metro Manila

Name	MacArthur Hwy /P Valenzuela St	Code	VL-03
Sheet	Analysis	LGU	Valenzuela

- 1) Existing practice of keeping tricycles off Pio Valenzuela should be maintained.
- 2) Vendors on sidewalks obstruct pedestrian flows, causing pedestrians to use the carriageway.
- 3) Main traffic is along MacArthur Highway, accounting for 90% of 2-way volumes. Problem arises when "green" for Pio Valenzuela traffic gets more than proportionate allocation, or when cycle time become too long (more than 2 minutes).



Name	MacArthur Hwy /P Valenzuela St	Code	VL-03
Sheet	Proposed Improvements	LGU	Valenzuela
Engineering	1) Vehicle volume on Pio Valenzuela does not warrant major re-engineering of the junction, other than the installation of pavement markings (lanes, directional arrows, stop line, zebra).		
Enforcement	1) Continue policy of disallowing tricycles from picking up passengers on the Pio Valenzuela, 2) Remove vendors from sidewalks, while their numbers are still manageable.		



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Small Scale Traffic Improvement Measures for Metro Manila

LOCATION: VL03, MacArthur Highway / P. Valenzuela Street (VALENZUELA)
(cost summary)

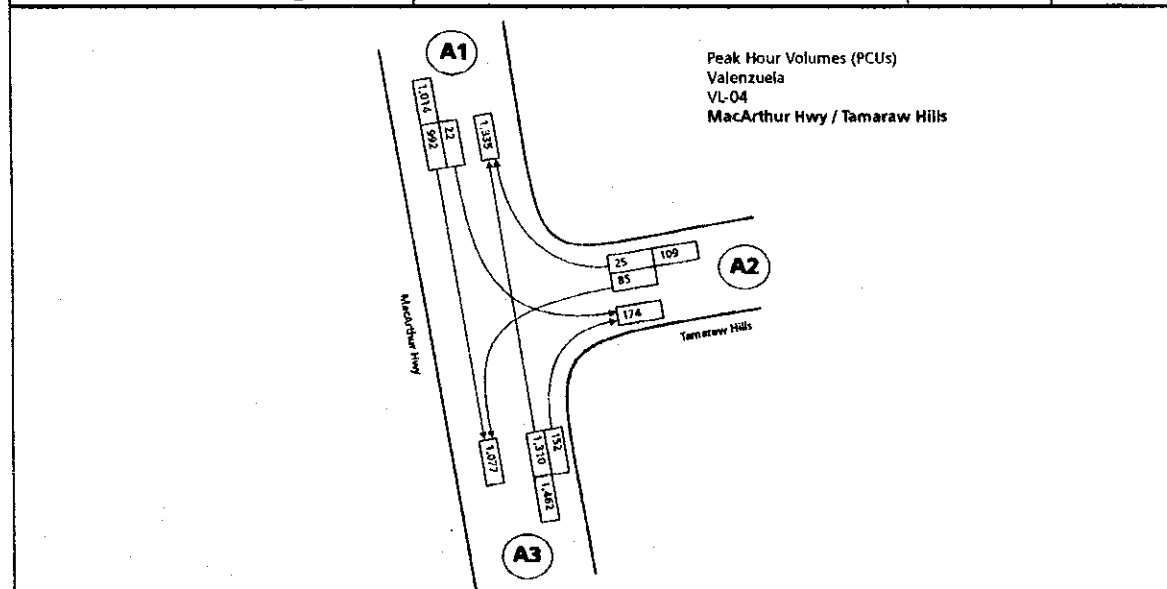
A. Pavement Markings:	Unit	Quantity	Unit Cost	Total Cost
<i>Longitudinal Lines:</i>				
1. Center Lines				
a) Broken Line, 100 or 150mm width, 3m length, w = 200mm	l.m	140.00	60.00	8,400.00
b) Solid White Lines, 200mm width	l.m	60.00	150.00	9,000.00
2. Lane Lines (100mm or 150mm width)				
a) Solid Lines, w = 150 mm	l.m	30.00	112.50	3,375.00
b) Broken Lines w= 150mm	l.m	470.00	45.00	21,150.00
3. Barrier Lines				
a) Unbroken Double Yellow Lines (100 or 150mm width)	l.m	-	-	-
b) Single Yellow Line with broken White Lines (100-150mm)	l.m	-	-	-
4. Edge Lines				
a) Pavement Edge (Shoulders)	l.m	-	-	-
b) Median Edge	l.m	-	-	-
5. Continuity Line	l.m	-	-	-
6. Transition Line	l.m	-	-	-
<i>Transverse Lines:</i>				
1. Stop Lines (Solid Lines) white, width = 450 mm	l.m	20.00	337.50	6,750.00
2. Give Way (Yield Lines)	l.m	-	-	-
3. Pedestrian Crossing Markings				
a) Zebra Crossing (Non-Signalized), width = 300mm	l.m	240.00	225.00	54,000.00
b) Cross Walks (Signalized), width = 300mm	l.m	-	-	-
<i>Other Lines:</i>				
1. Turn Lines (broken Lines)	l.m	-	-	-
2. Parking Bay Lines				
a) Parallel Bays, width = 100mm	l.m	-	-	-
b) Angle Bays	l.m	-	-	-
3. Painted Median Islands	l.m	-	-	-
4. BUS and PUJ Lane Markings	l.m	-	-	-
5. Channelized Junction Pavement Marking	l.m	-	-	-
6. Yellow Box Line, w= 150mm	l.m	-	-	-
<i>Other Markings:</i>				
1. Approach Markings to Islands and Obstructions	l.m	-	-	-
2. Chevron Markings	l.m	-	-	-
3. Curb Markings for Parking Restrictions	l.m	-	-	-
4. Approach to Railroad Crossings	l.m	-	-	-
5. Diagonal Markings on Sealed Shoulders				
a) Outline, 150mm width	l.m	-	-	-
b) Diagonal Bars, 300mm width	l.m	-	-	-
<i>Messages and Symbols:</i>				
1. Messages	pcs	-	-	-
2. Symbols				
a) Give Way symbol	pcs	-	-	-
b) Pavement Arrows				
1) Through Arrow = 1.21 sq.m / each	pcs	2.00	907.50	1,815.00
2) Combined Arrow = 2.44 sq.m / each	pcs	3.00	1,830.00	5,490.00
3) Turn Arrow = 1.46 sq. m / each	pcs	-	-	-
c) Numerals	pcs	-	-	-
B. Signs				
1. No Parking Sign	Units	1.00	2,716.00	2,716.00
2. Pedestrian Crossing Sign	Units	3.00	3,850.00	11,550.00
3. Stop Sign	Units	1.00	2,718.00	2,718.00
4. Directional Sign	Units	-	-	-
5. Bus / PUJ Stop Sign	Units	-	-	-
C. Other Works				
1. Reprogramming of Traffic Signal	l.s.	-	-	-
2. Pedestrian Steel Railing	l.m.	-	-	-
3. Sidewalk Improvement				
a) Excavation & Subgrade Preparation	l.m	-	-	-
b) 4" Concrete Sidewalk	l.m	-	-	-
4. Repair Damaged Pavement				
a) Excavation & Subgrade Preparation	sq.m	-	-	-
b) 8" Concrete Pavement	sq.m	-	-	-
TOTAL				126,964.00
Contingencies, 5%				6,348.20
CMS, 10%				12,696.40
Miscellaneous (fees, permits, etc), 5%				6,348.20
Govt. Supervision, 2%				2,539.28
TOTAL COST				154,896.08

Name	MacArthur Hwy / Tamaraw Hills	Code	VL-04
Sheet	Summary of Observations	LGU	Valenzuela

Traffic Conditions	<ol style="list-style-type: none"> 1) Unsignalized T-intersection 2) Tricycles waiting along Tamaraw Hills road on the exit lane near the intersection are located immediately at the intersection, though fairly well-ordered/well-parked. However, they are also known to occupy both sides of the road during peak hours 3) Few pedestrians on road
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Physical Conditions	<ol style="list-style-type: none"> 1) No lane markings on either of the intersecting roads. 2) Pavement damage on exit and entry lanes of Tamaraw Hills caused apparently by some kind of excavation that was not properly refilled. 3) Convenience store at the north corner of Tamaraw Hills Rd, where the narrow sidewalk begins. 4) Petron gas station at the south corner of Tamaraw Hills Rd. 5) Sign on Tamaraw Hills Rd approach lane, "Tricycle Pedicab, BAWAL PUMASOK". 6) Waiting shed on the northbound side of MacArthur just north of the Tamaraw Hills entry lane.
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Signalization	None	Pavement Markings	None	Peak	15:00-16:00		
Approach	Dimensions	Peak Hour Traffic Volumes (PCUs)				% Public Transport	Pedestrian Volume
		Left	Through	Right	Total		
A1: MacArthur Hwy(N)	14.6m	22	992	NA	1,014	41.58	Light
A2: Tamaraw Hills	3.4m	85	NA	25	109	35.25	Moderate
A3: MacArthur Hwy (S)	14.6m	NA	1,310	152	1,462	42.52	Light
A4: None	None	None	None	None	None	None	None
Total		106	2,302	176	2,584		
Passenger Flows							

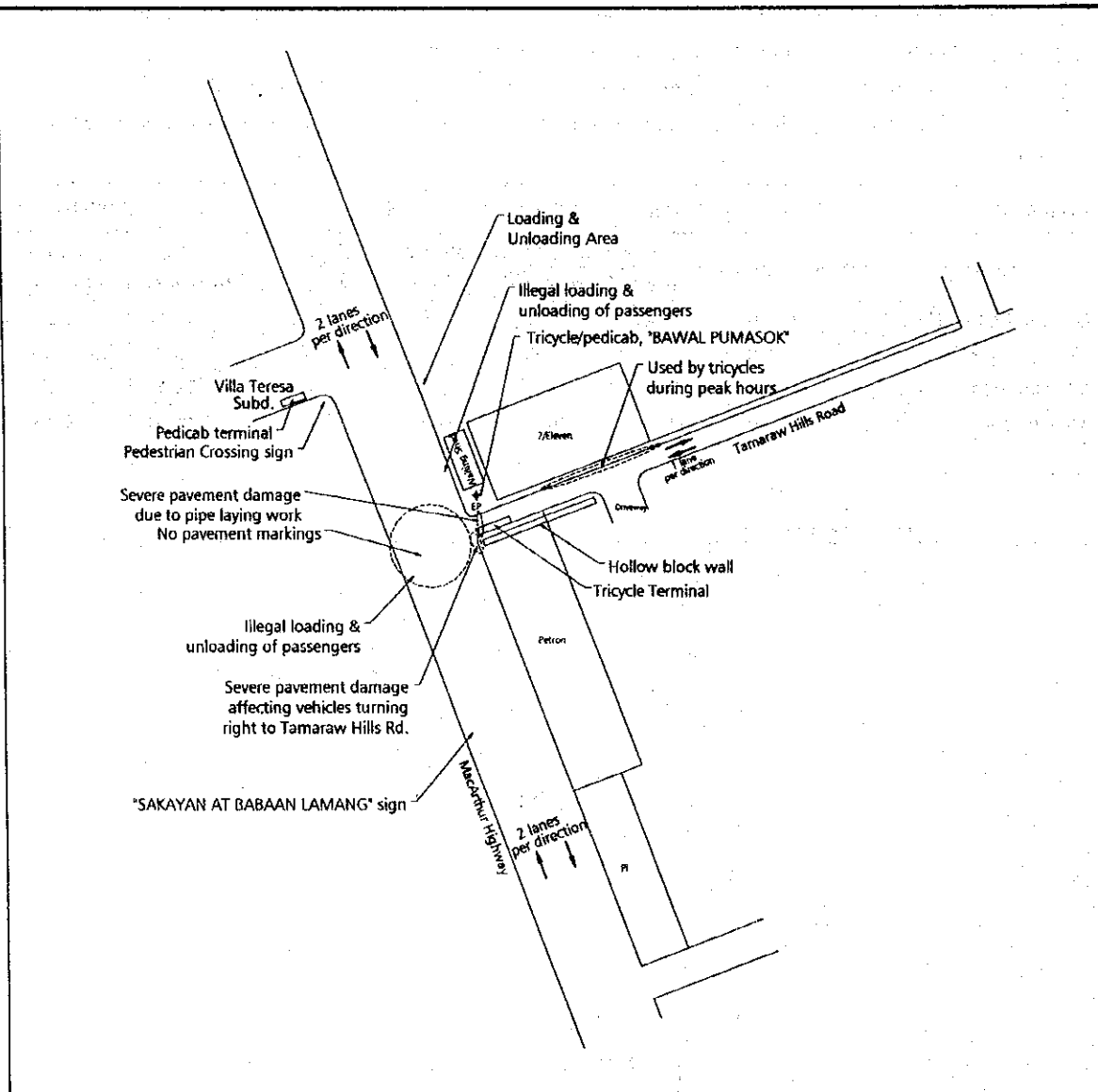


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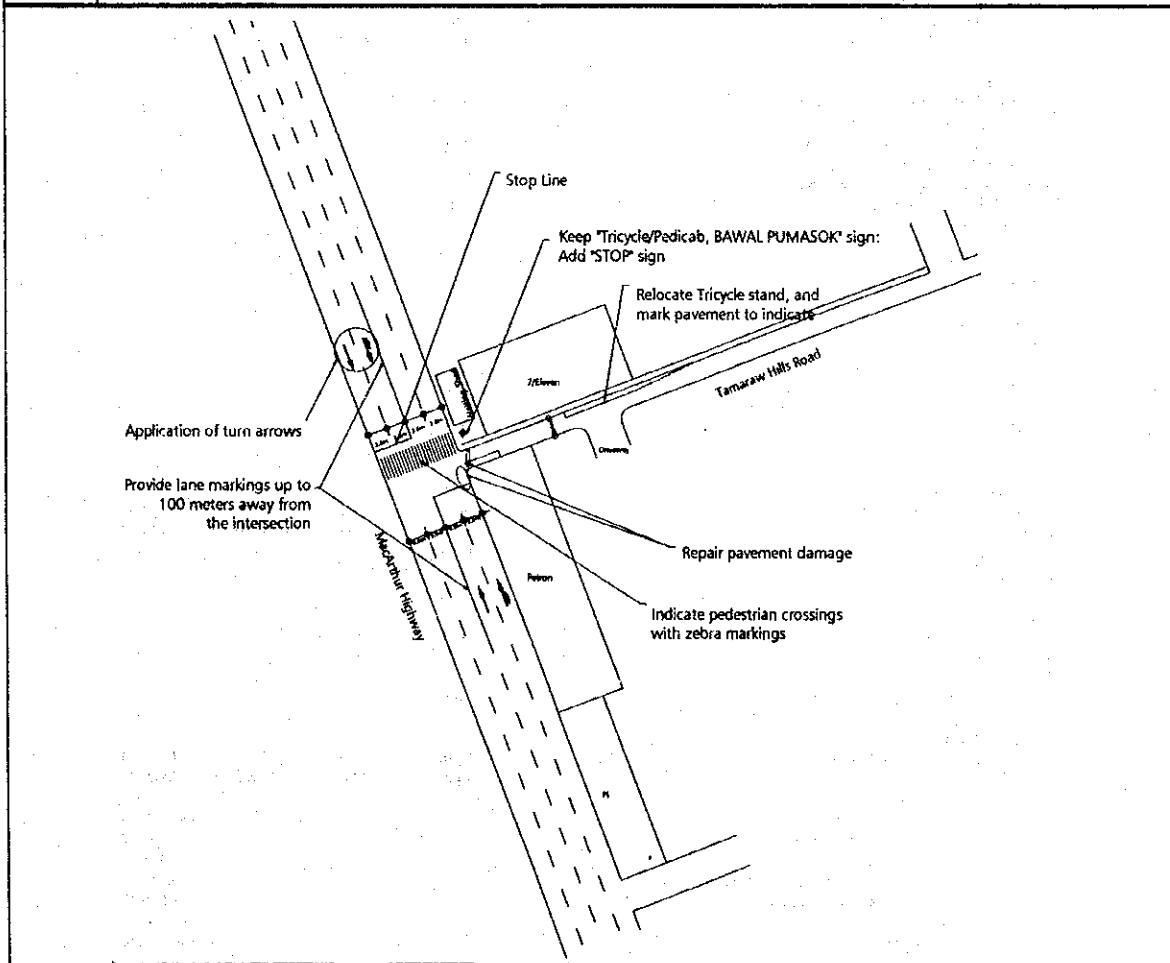
Small Scale Traffic Improvement Measures for Metro Manila

Name	MacArthur Hwy / Tamaraw Hills	Code	VL-04
Sheet	Analysis	LGU	Valenzuela

- 1) Volume on Tamaraw Hills constitute less than 5% of junction traffic, but eats up more than proportionate time. Partly caused by pavement damage.
- 2) Present location and orientation of tricycles exposes passengers to the traffic, their loading and unloading into and from the sidecar being immediately facing the carriageway. This is unsafe for the passengers and presents an opportunity for numerous instances of tricycle passengers obstructing traffic on the carriageway.
- 3) Tricycles reduce the capacity of Tamaraw Hills Rd but there are presently no viable alternative locations to take them off the road. Tricycles, being located at the intersection inadvertently cause exiting traffic to take all or part of the opposing lane on Tamaraw Hills Rd.



Name	MacArthur Hwy / Tamaraw Hills	Code	VL-04
Sheet	Proposed Improvements	LGU	Valenzuela
Engineering	<ol style="list-style-type: none"> 1) Repair pavement damaged by waterworks excavations, as well as at the approach of vehicles turning right to Tamaraw Hills from MacArthur (from the South). 2) Install pavement markings (lanes, zebra, double-yellow) as indicated. 3) Designate the loading and unloading areas of tricycles, 50 meters away from intersection. 4) Appropriate traffic control signage should be placed. These are especially: <ol style="list-style-type: none"> a. Sign indicating "STOP" for traffic coming from A. Fernando b. Sign indicating appropriate loading and unloading area for tricycles 		
Enforcement	<ol style="list-style-type: none"> 1) Tricycles should be set back at least 10 meters away from the intersection to provide space for vehicles turning into and coming from MacArthur highway. Loading / unloading be at designated areas only. 2) Presence of Traffic Enforcers, especially during peak hour, to clear entry / exit of Tamaraw Hills. 3) Give priority to traffic at MacArthur (15% of time), without too long cycle time. 		



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Small Scale Traffic Improvement Measures for Metro Manila

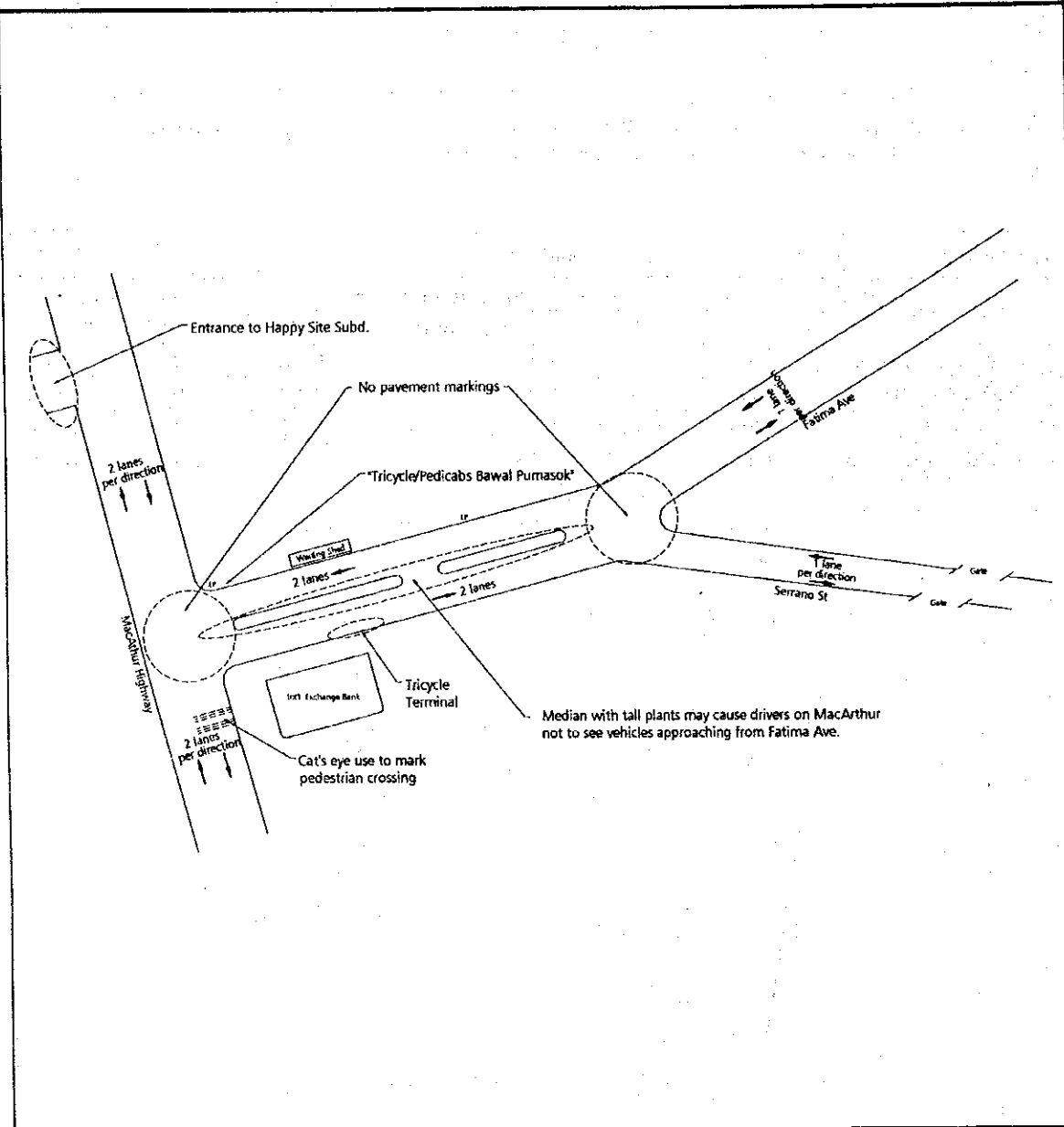
LOCATION: VL04, MacArthur Highway / Tamaraw Hills (VALENZUELA)
(cost summary)

	<u>Unit</u>	<u>Quantity</u>	<u>Unit Cost</u>	<u>Total Cost</u>
A. Pavement Markings				
<i>Longitudinal Lines:</i>				
1. Center Lines				
a) Broken Line, 100 or 150mm width, 3m length, w = 200mm	l.m	210.00	60.00	12,600.00
b) Solid White Lines, 200mm width	l.m	90.00	150.00	13,500.00
2. Lane Lines (100mm or 150mm width)				
a) Solid Lines, w = 150 mm	l.m	-	-	-
b) Broken Lines w= 150mm	l.m	400.00	45.00	18,000.00
3. Barrier Lines				
a) Unbroken Double Yellow Lines (100 or 150mm width)	l.m	-	-	-
b) Single Yellow Line with broken White Lines (100-150mm)	l.m	-	-	-
4. Edge Lines				
a) Pavement Edge (Shoulders)	l.m	-	-	-
b) Median Edge	l.m	-	-	-
5. Continuity Line	l.m	-	-	-
6. Transition Line	l.m	-	-	-
<i>Transverse Lines:</i>				
1. Stop Lines (Solid Lines) white, width = 450 mm	l.m	20.00	337.50	6,750.00
2. Give Way (Yield Lines)	l.m	-	-	-
3. Pedestrian Crossing Markings				
a) Zebra Crossing (Non-Signalized), width = 300mm	l.m	110.00	225.00	24,750.00
b) Cross Walks (Signalized), width = 300mm	l.m	-	-	-
<i>Other Lines:</i>				
1. Turn Lines (broken Lines)	l.m	-	-	-
2. Parking Bay Lines				
a) Parallel Bays, width = 100mm	l.m	-	-	-
b) Angle Bays	l.m	-	-	-
3. Painted Median Islands	l.m	-	-	-
4. BUS and PUJ Lane Markings	l.m	-	-	-
5. Channelized Junction Pavement Marking	l.m	-	-	-
6. Yellow Box Line, w= 150mm	l.m	-	-	-
7. Tricycle Stand Markings, width = 100mm	l.m	52.00	75.00	3,900.00
<i>Other Markings:</i>				
1. Approach Markings to Islands and Obstructions	l.m	-	-	-
2. Chevron Markings	l.m	-	-	-
3. Curb Markings for Parking Restrictions	l.m	-	-	-
4. Approach to Railroad Crossings	l.m	-	-	-
5. Diagonal Markings on Sealed Shoulders				
a) Outline, 150mm width	l.m	-	-	-
b) Diagonal Bars, 300mm width	l.m	-	-	-
<i>Messages and Symbols:</i>				
1. Messages	pcs	-	-	-
2. Symbols				
a) Give Way symbol	pcs	-	-	-
b) Pavement Arrows				
1) Through Arrow = 1.21 sq.m / each	pcs	-	-	-
2) Combined Arrow = 2.44 sq.m / each	pcs	-	-	-
3) Turn Arrow = 1.46 sq. m / each	pcs	-	-	-
c) Numerals	pcs	-	-	-
B. Signs				
1. No Parking Sign	Units	-	-	-
2. Pedestrian Crossing Sign	Units	3.00	3,850.00	11,550.00
3. Stop Sign	Units	1.00	2,718.00	2,718.00
4. Directional Sign	Units	-	-	-
5. Bus / PUJ Stop Sign	Units	-	-	-
C. Other Works				
1. Reprogramming of Traffic Signal	l.s.	-	-	-
2. Pedestrian Steel Railing	l.m.	-	-	-
3. Sidewalk Improvement				
a) Excavation & Subgrade Preparation	l.m	-	-	-
b) 4" Concrete Sidewalk	l.m	-	-	-
4. Repair Damaged Pavement				
a) Excavation & Subgrade Preparation	sq.m	48.00	65.25	3,132.00
b) 8" Concrete Pavement	sq.m	48.00	790.00	37,920.00
TOTAL				134,820.00
Contingencies, 5%				6,741.00
CMS, 10%				13,482.00
Miscellaneous (fees, permits, etc), 5%				6,741.00
Govt. Supervision, 2%				2,696.40
TOTAL COST				164,480.40

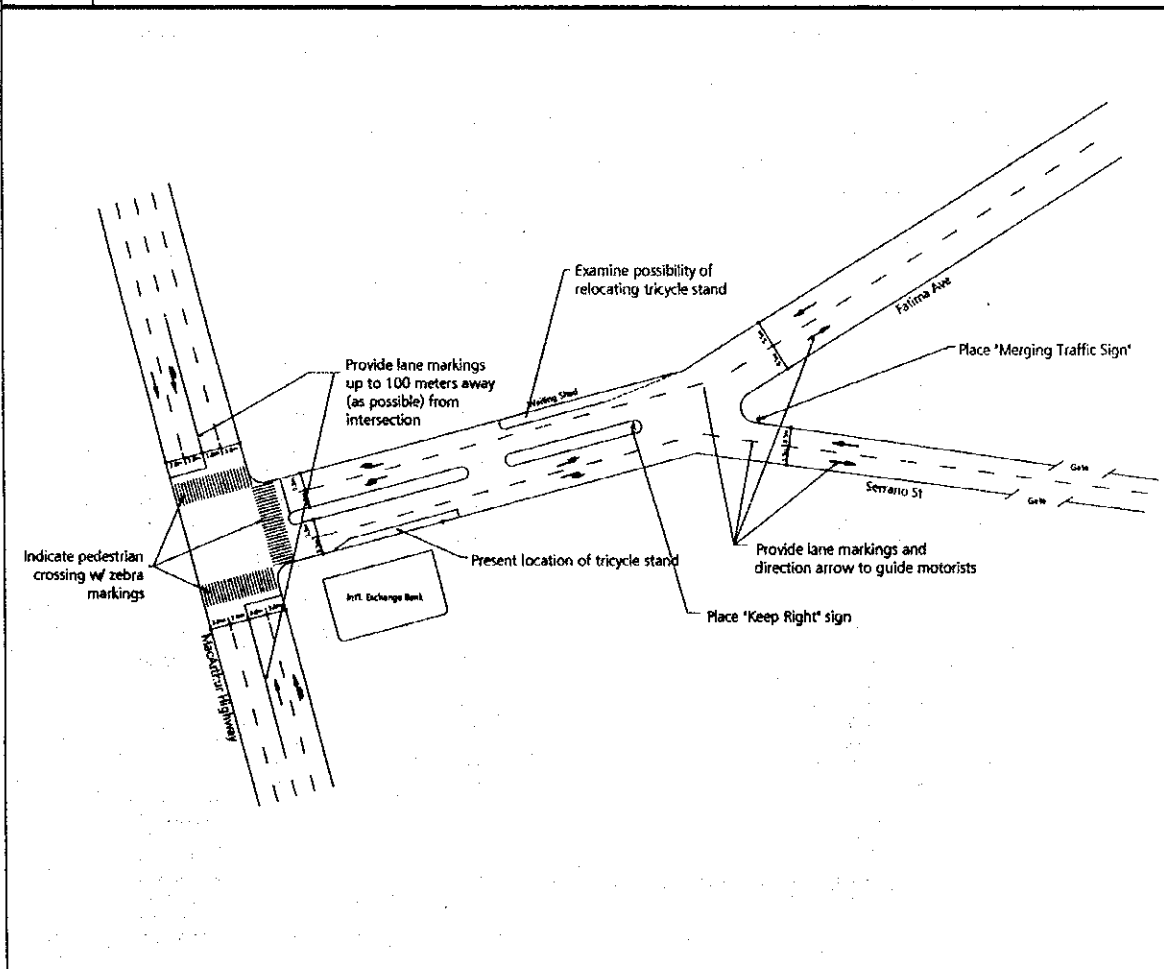
Name	Fatima Ave / Serrano St		Code	VL-05			
Sheet	Summary of Observations		LGU	Valenzuela			
Traffic Conditions	<ol style="list-style-type: none"> 1) Unsignalized T-intersection being fed by a Y-intersection to the East. 2) Tricycles stand along Fatima Avenue before the south corner of M. Serrano Sheet. 3) Our Lady of Fatima church is a major traffic generator/attractor in the area 4) Very few pedestrians observed 						
Physical Conditions	<ol style="list-style-type: none"> 1) On the Western side of MacArthur Highway the entrance/exit to/from Happy Site Subdivision is 40 meters away from the Fatima Ave/Serrano junction. This may pose a problem if vehicles cross from the highway. 2) Sidewalk on Fatima Ave has many obstructions, especially area closer to the intersection. 3) Fatima Avenue and T. Serrano St both meet at MacArthur Highway, but a median with plants divides the two streets before reaching MacArthur Highway. 						
Signalization	None	Pavement Markings	None	Peak 09:00-10:00			
Approach	Dimensions	Peak Hour Traffic Volumes (PCUs)				% Public Transport	Pedestrian Volume
		Left	Through	Right	Total		
A1: MacArthur Hwy(N)	14.4m	69	1,464	NA	1,532	42.45%	Light
A2: Fatima Ave (NE)	10.2m	44	NA	13	57	34.02%	Light
A3: Serrano (SE)	7.2m	17	NA	25	41	46.22%	Light
A4: MacArthur Hwy (S)	14.4m	NA	1,268	134	1,401	21.00%	Light
Total		129	2,731	170	3,030		
Passenger Flows							
<p>Peak Hour Volumes (PCUs) Valenzuela VL-05 Fatima Ave / Serrano St</p>							

Name	Fatima Ave / Serrano St	Code	VL-05
Sheet	Analysis	LGU	Valenzuela

- 1) The crossing of vehicles from Serrano St to Fatima Ave, before reaching MacArthur Highway, creates conflict with vehicles coming from MacArthur. Length of Fatima (from MacArthur Highway to Serrano St) is too short and capacity reduced by tricycles and roadside friction.
- 2) Present location and orientation of tricycles exposes passengers to the traffic, their loading and unloading into and from the sidecar being immediately facing the carriageway. This is unsafe for the passengers and presents an opportunity for numerous instances of tricycle passengers obstructing traffic on the carriageway.



Name	Fatima Ave / Serrano St	Code	VL-05
Sheet	Proposed Improvements	LGU	Valenzuela
Engineering	<ol style="list-style-type: none"> 1) Removal of plants on median which obstruct view of drivers 2) Installation of signs which indicate directionality of the approaches, supported by pavement markings such as arrows and lane markings. Install "Right lane must turn Right" sign along Fatima Avenue before Serano. 3) Relocate tricycle stand to Northern side of Fatima. 4) Indicate pedestrian crossings with zebra markings (on MacArthur and Fatima). 5) Provide white simple lane markings up to 100 meters away from intersection. 		
Enforcement	<ol style="list-style-type: none"> 1) No loading / unloading on both sides of Fatima Ave (from corner of MacArthur to corner of Serrano). Accordingly, tricycles should be set back at least 10 meters away from the intersection to provide space for vehicles turning into and from MacArthur Hwy. 2) Prohibit left-turn movement, from Fatima Ave to Serrano St, if possible. 		



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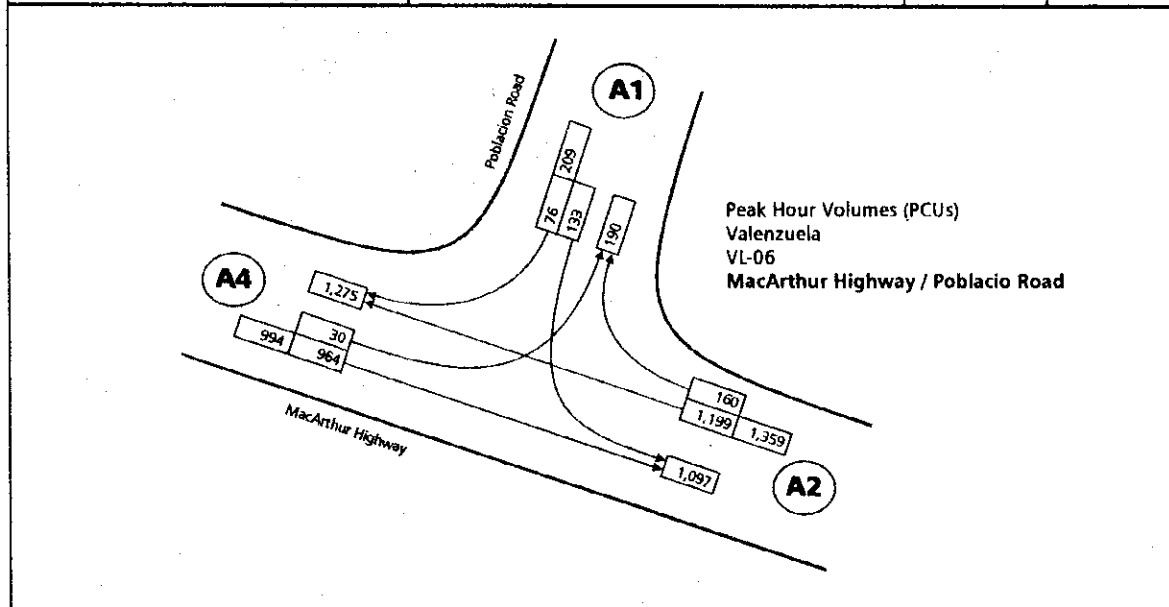
Small Scale Traffic Improvement Measures for Metro Manila

LOCATION: VL05, Fatima Avenue / Serrano St. (VALENZUELA)
(cost summary)

A. Pavement Markings	Unit	Quantity	Unit Cost	Total Cost
<i>Longitudinal Lines:</i>				
1. Center Lines				
a) Broken Line, 100 or 150mm width, 3m length, w = 200mm	l.m	340.00	60.00	20,400.00
b) Solid White Lines, 200mm width	l.m	60.00	150.00	9,000.00
2. Lane Lines (100mm or 150mm width)				
a) Solid Lines, w = 150 mm	l.m	-	-	-
b) Broken Lines w= 150mm	l.m	400.00	45.00	18,000.00
3. Barrier Lines				
a) Unbroken Double Yellow Lines (100 or 150mm width)	l.m	-	-	-
b) Single Yellow Line with broken White Lines (100-150mm)	l.m	-	-	-
4. Edge Lines				
a) Pavement Edge (Shoulders)	l.m	-	-	-
b) Median Edge	l.m	-	-	-
5. Continuity Line	l.m	-	-	-
6. Transition Line	l.m	-	-	-
<i>Transverse Lines:</i>				
1. Stop Lines (Solid Lines) white, width = 450 mm	l.m	16.00	337.50	5,400.00
2. Give Way (Yield Lines)	l.m	-	-	-
3. Pedestrian Crossing Markings				
a) Zebra Crossing (Non-Signalized), width = 300mm	l.m	288.00	225.00	64,800.00
b) Cross Walks (Signalized), width = 300mm	l.m	-	-	-
<i>Other Lines:</i>				
1. Turn Lines (broken Lines)	l.m	-	-	-
2. Parking Bay Lines				
a) Parallel Bays, width = 100mm	l.m	-	-	-
b) Angle Bays	l.m	-	-	-
3. Painted Median Islands	l.m	-	-	-
4. BUS and PUJ Lane Markings	l.m	-	-	-
5. Channelized Junction Pavement Marking	l.m	-	-	-
6. Yellow Box Line, w= 150mm	l.m	-	-	-
7. Tricycle Stand Markings, width = 100mm	l.m	40.00	75.00	3,000.00
<i>Other Markings:</i>				
1. Approach Markings to Islands and Obstructions	l.m	-	-	-
2. Chevron Markings	l.m	-	-	-
3. Curb Markings for Parking Restrictions	l.m	-	-	-
4. Approach to Railroad Crossings	l.m	-	-	-
5. Diagonal Markings on Sealed Shoulders				
a) Outline, 150mm width	l.m	-	-	-
b) Diagonal Bars, 300mm width	l.m	-	-	-
<i>Messages and Symbols:</i>				
1. Messages	pcs	-	-	-
2. Symbols				
a) Give Way symbol	pcs	-	-	-
b) Pavement Arrows				
1) Through Arrow = 1.21 sq.m / each	pcs	6.00	907.50	5,445.00
2) Combined Arrow = 2.44 sq.m / each	pcs	2.00	1,830.00	3,660.00
3) Turn Arrow = 1.46 sq. m / each	pcs	-	-	-
c) Numerals	pcs	-	-	-
B. Signs				
1. No Parking Sign	Units	-	-	-
2. Pedestrian Crossing Sign	Units	3.00	3,850.00	11,550.00
3. Stop Sign	Units	1.00	2,718.00	2,718.00
4. Directional Sign, "Keep Right"	Units	1.00	2,716.00	2,716.00
5. Bus / PUJ Stop Sign	Units	-	-	-
6. Merging Traffic Sign	Units	1.00	3,850.00	3,850.00
C. Other Signs				
1. Reprogramming of Traffic Signal	l.s.	-	-	-
2. Pedestrian Steel Railing	l.m.	-	-	-
3. Removal of Plants on Median	l.s.	-	-	3,000.00
3. Sidewalk Improvement				
a) Excavation & Subgrade Preparation	l.m	-	-	-
b) 4" Concrete Sidewalk	l.m	-	-	-
4. Repair Damaged Pavement				
a) Excavation & Subgrade Preparation	sq.m	-	-	-
b) 8" Concrete Pavement	sq.m	-	-	-
TOTAL				153,539.00
Contingencies, 5%				7,676.95
CMS, 10%				15,353.90
Miscellaneous (fees, permits, etc), 5%				7,676.95
Govt. Supervision, 2%				3,070.78
TOTAL COST				187,317.58

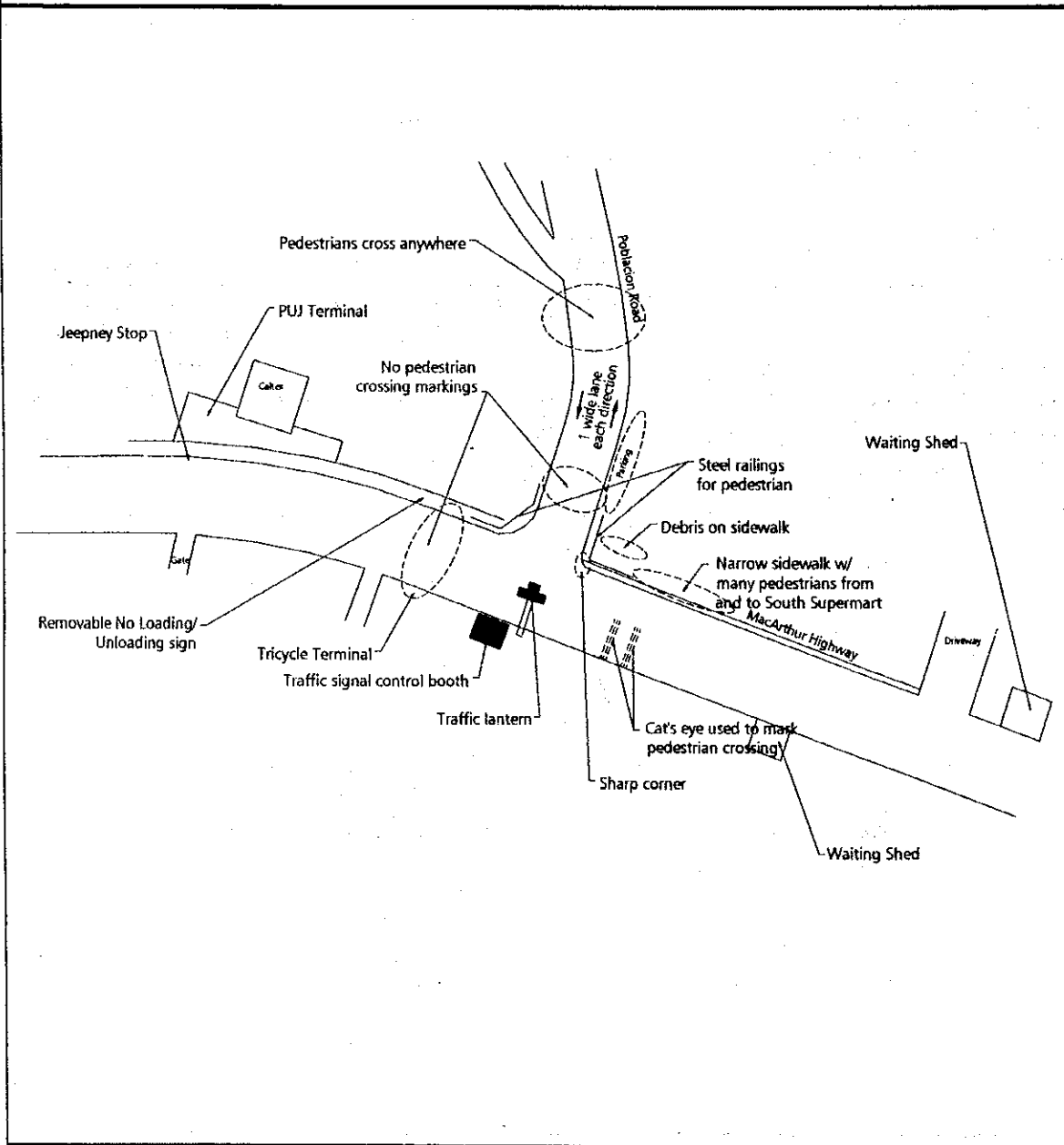
Name	MacArthur Hwy / Poblacion Road	Code	VL-06
Sheet	Summary of Observations	LGU	Valenzuela
Traffic Conditions	<ol style="list-style-type: none"> 1) Signalized T-intersection under manual control. 2) Heavy pedestrian volume. 3) Pedestrians cross Poblacion II at any location. 4) Major traffic is on MacArthur Highway. 		
Physical Conditions	<ol style="list-style-type: none"> 1) Pedestrian barriers installed at both corners of Poblacion Road, to control the location of crossing. 2) Debris on sidewalks. 3) Narrow sidewalk from South Supermarket towards Poblacion Road. 4) Lane markings non-existent or ill-defined. 		

Signalization	Manual	Pavement Markings	Very limited	Peak	16:00-1700		
Approach	Dimensions	Peak Hour Traffic Volumes (PCUs)				% Public Transport	Pedestrian Volume
		Left	Through	Right	Total		
A1: Poblacion Rd	10.1m	133	NA	76	209	29.61%	Moderate
A2: MacArthur Hwy(N)	14.2m	NA	1,199	160	1,359	53.29%	Heavy
A3: None	None	None	None	None	None	None	None
A4: MacArthur Hwy (S)	14.2m	30	964	NA	994	54.26	Moderate
Total		163	2,163	236	2,561		
Passenger Flows							

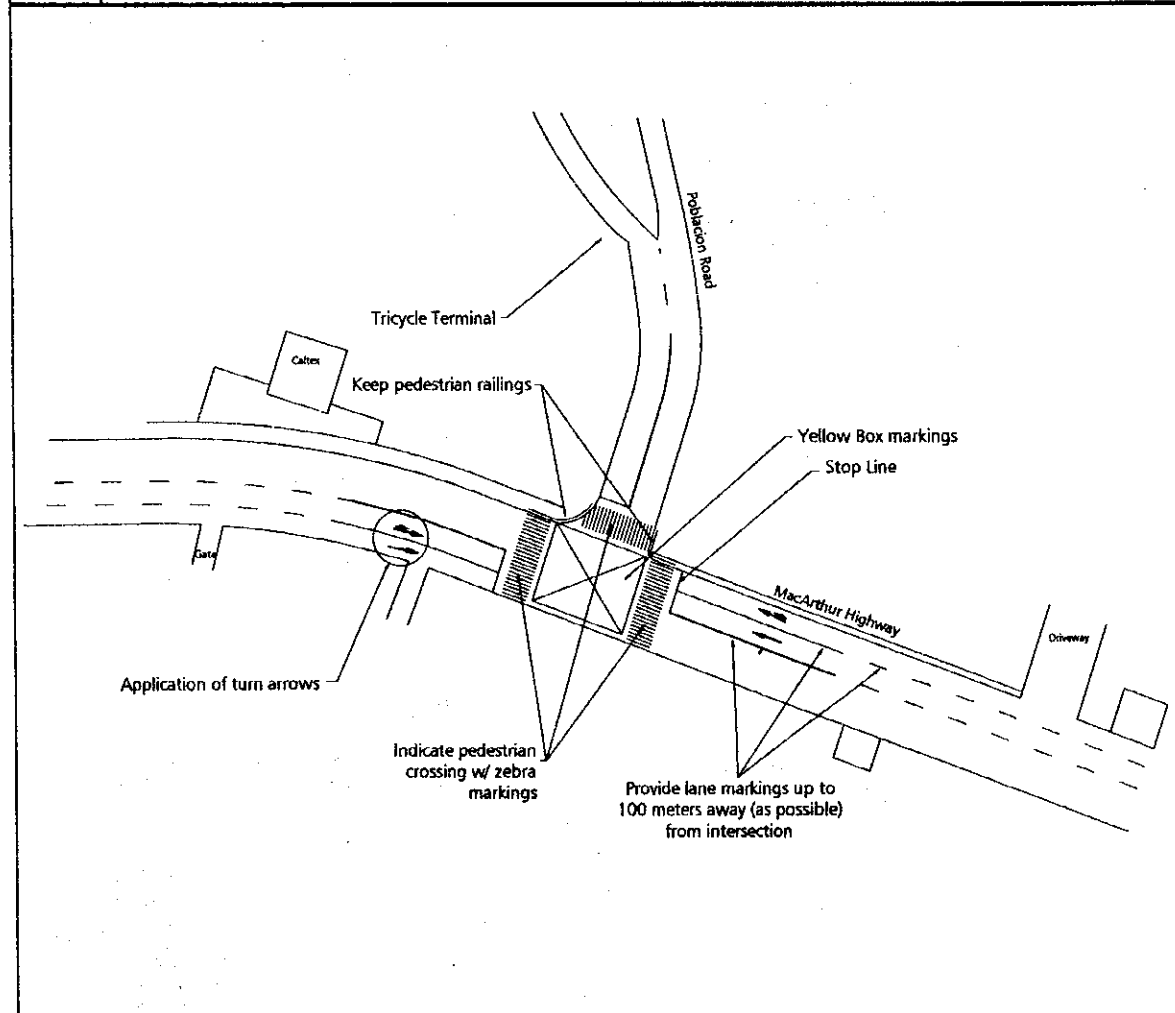


Name	McArthur Highway / Poblacion Road	Code	VL-06
Sheet	Analysis	LGU	Valenzuela

- 1) Poblacion II is an important access to the Valenzuela City Hall. Uncontrolled crossing of pedestrians. Hamper smooth entry / exit from MacArthur. Turning radii at corners also not convenient.
- 2) Traffic on MacArthur comprised about 92% of vehicles passing through the junction, but maybe getting less than proportionate green time from the enforcers controlling the signal.



Name	McArthur Highway / Poblacion Road	Code	VL-06
Sheet	Proposed Improvements	LGU	Valenzuela
Engineering	<ol style="list-style-type: none"> 1) Install pavement markings designation, (lane, zebra, double-yellow) at approaches of MacArthur Highway and Poblacion Rd. 2) Yellow box for indicating "Keep Intersection Clear" should be painted at the intersection. 3) Widen/improve sidewalks, along side of A4 and A2. 4) Smoothen sharp corners, north and south, to facilitate turning movements from Poblacion Rd. 		
Enforcement	<ol style="list-style-type: none"> 1) Discipline pedestrians to cross only at designated areas, and only when indication for Poblacion is "Red". (Green on MacArthur Highway). 2) Signal phasing should give priority to MacArthur Highway and limit to 5, with short cycle. 		



LOCATION: VL06, MacArthur Highway / Poblacion Road (VALENZUELA)
(cost summary)

	Unit	Quantity	Unit Cost	Total Cost
A. Pavement Markings:				
<i>Longitudinal Lines:</i>				
1. Center Lines				
a) Broken Line, 100 or 150mm width, 3m length, w = 200mm	l.m	160.00	60.00	9,600.00
b) Solid White Lines, 200mm width	l.m	90.00	150.00	13,500.00
2. Lane Lines (100mm or 150mm width)				
a) Solid Lines, w = 150 mm	l.m	60.00	-	-
b) Broken Lines w= 150mm	l.m	140.00	45.00	6,300.00
3. Barrier Lines				
a) Unbroken Double Yellow Lines (100 or 150mm width)	l.m	-	-	-
b) Single Yellow Line with broken White Lines (100-150mm)	l.m	-	-	-
4. Edge Lines				
a) Pavement Edge (Shoulders)	l.m	-	-	-
b) Median Edge	l.m	-	-	-
5. Continuity Line	l.m	-	-	-
6. Transition Line	l.m	-	-	-
<i>Transverse Lines:</i>				
1. Stop Lines (Solid Lines) white, width = 450 mm	l.m	22.00	337.50	7,425.00
2. Give Way (Yield Lines)	l.m	-	-	-
3. Pedestrian Crossing Markings				
a) Zebra Crossing (Non-Signalized), width = 300mm	l.m	-	-	-
b) Cross Walks (Signalized), width = 300mm	l.m	84.00	225.00	18,900.00
<i>Other Lines:</i>				
1. Turn Lines (broken Lines)	l.m	-	-	-
2. Parking Bay Lines				
a) Parallel Bays, width = 100mm	l.m	-	-	-
b) Angle Bays	l.m	-	-	-
3. Painted Median Islands	l.m	-	-	-
4. BUS and PUJ Lane Markings	l.m	-	-	-
5. Channelized Junction Pavement Marking	l.m	-	-	-
6. Yellow Box Line, w= 150mm	l.m	99.00	75.00	7,425.00
7. Tricycle Stand Markings, width = 100mm	l.m	-	-	-
<i>Other Markings:</i>				
1. Approach Markings to Islands and Obstructions	l.m	-	-	-
2. Chevron Markings	l.m	-	-	-
3. Curb Markings for Parking Restrictions	l.m	-	-	-
4. Approach to Railroad Crossings	l.m	-	-	-
5. Diagonal Markings on Sealed Shoulders				
a) Outline, 150mm width	l.m	-	-	-
b) Diagonal Bars, 300mm width	l.m	-	-	-
<i>Messages and Symbols:</i>				
1. Messages	pcs	-	-	-
2. Symbols				
a) Give Way symbol	pcs	-	-	-
b) Pavement Arrows				
1) Through Arrow = 1.21 sq.m / each	pcs	4.00	907.50	3,630.00
2) Combined Arrow = 2.44 sq.m / each	pcs	4.00	1,830.00	7,320.00
3) Turn Arrow = 1.46 sq. m / each	pcs	-	-	-
c) Numerals	pcs	-	-	-
B. Signs				
1. No Parking Sign	Units	-	-	-
2. Pedestrian Crossing Sign	Units	3.00	3,850.00	11,550.00
3. Stop Sign	Units	1.00	2,718.00	2,718.00
4. Directional Sign, "Keep Right"	Units	-	-	-
5. Bus / PUJ Stop Sign	Units	-	-	-
C. Other Works				
1. Reprogramming of Traffic Signal	l.s.	-	-	-
2. Pedestrian Steel Railing	l.m.	-	-	-
3. Improve/Smoothen Sharp Curve	l.m.	-	-	17,000.00
4. Sidewalk Improvement (Widening) Sides A4 & A2				
a) Excavation & Subgrade Preparation	l.m	125.00	49.50	6,187.50
b) 4" Concrete Sidewalk	l.m	125.00	395.00	49,375.00
5. Repair Damaged Pavement				
a) Excavation & Subgrade Preparation	sq.m	-	-	-
b) 8" Concrete Pavement	sq.m	-	-	-
TOTAL				160,930.50
Contingencies, 5%				8,046.53
CMS, 10%				16,093.05
Miscellaneous (fees, permits, etc), 5%				8,046.53
Govt. Supervision, 2%				3,218.61
TOTAL COST				196,335.21

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