

**North:** Various municipalities, such as Meycauayan, Bulacan, Bocaue, Malolos, Plaridel, Santa Monica, San Jose, and Sapangpalay in Bulacan.

**South:** Various municipalities, such as Bacoor, Imus, Cavite City, Kawit, Rosario, General Trias, Tanza, Trece Martires, Dasmariñas, Silang, and Carmona, in Cavite and San Pedro, Biñan, Santa Rosa, Cabuyao, Calamba, and Los Baños in Laguna.

**East:** Various municipalities, such as Rodriguez, San Mateo, Antipolo, Cainta, and Binangonan in Rizal.

### 10.3 Proposed Road Projects

The category of road projects covers primary and secondary arterial roads and urban expressways. At-grade arterial road networks consisting of primary and secondary arteries will form the most basic transport corridor and promote orderly urban expansion. These networks will also be an important space for future development of viaducts or underground structures for expressways and railways, thus they are one of the highest priorities in the Master Plan.

In the medium-term plan, road development projects are categorized into a number of project packages that mutually enhance each other. Figure 10.2 shows candidate and selected road projects for the MTDP for 1999-2004.

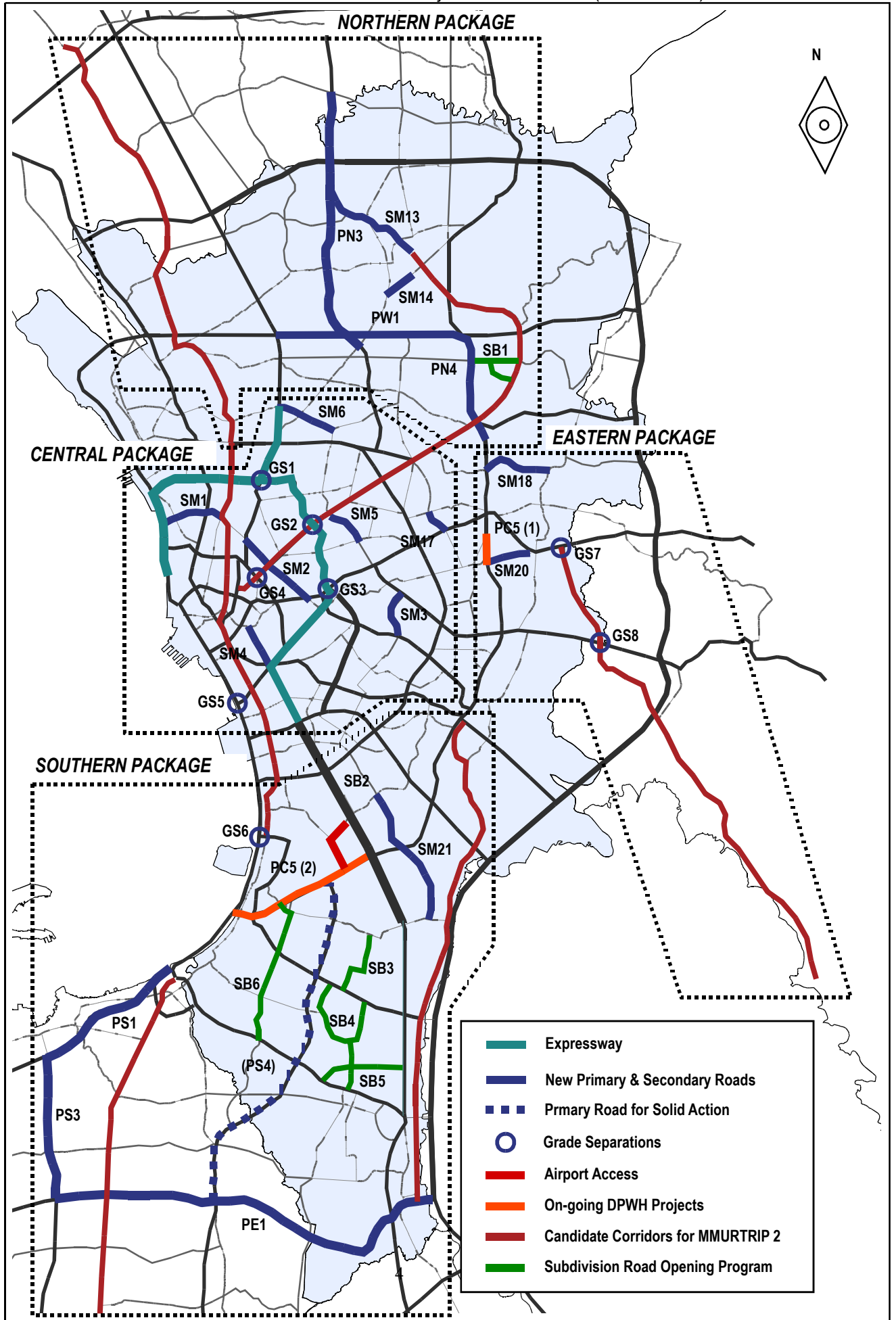
#### 1) Northern Road Package

The Northern Road Package includes a new primary artery that will provide for an orderly urban expansion in the north, two secondary arteries to extend the existing arterial road network properly and several subdivision-road openings to enhance the feeder network for C-5 North Section. The projects are described as follows:

Table 10.10  
Northern Road Package

Category	Project Name	Length	Project Cost (₱ million)
Primary Artery	PN3: North Central Road	11.0 km	8,087
Secondary Artery	SM13: Marcos Ave. Extension	4.5 km	2,116
	SM14: Quirino Hwy-Novaliches Bypass	1.5 km	418
Subdivision Rd.	Don Antonio/Sampaguita, Jose M. Delgado	---	---
Total		17.0 km	10,621

Figure 10.2  
Candidates and Selected Road Projects for the MTDP (1999 – 2004)



**North Central Road (PN3)** is one of the MMUTIS' core proposals to develop the second north-south axis next to the existing North Diversion Road (North Luzon Expressway) corridor. It will start from Quirino Highway to an existing road in Marilao, Bulacan, as an extension of Mindanao Avenue (North Avenue-Quirino Highway). It is strategically important to develop this corridor to guide orderly urban expansion.

**Don Mariano Marcos Avenue Extension to North Central Road (SM13)** is an extension of the terminated existing road in Fairview. This link will also be the best candidate for the future expressway route to be extended to North Luzon Expressway East (NLEE) from Commonwealth Avenue to North Central Road.

**Quirino Highway-Novaliches Bypass (SM14)** is intended to connect Mindanao Avenue (Lagro) and Quirino Highway to mitigate the serious congestion in Novaliches.

Several subdivision roads will be opened to furnish secondary connections between Commonwealth Avenue and the proposed C-5 North.

## 2) Southern Road Package

The Southern Road Package includes developing a new primary network that will follow a grid pattern, a new secondary arterial bypass for South Superhighway (South Luzon Expressway), together with a grade separation and several subdivision-road openings to improve existing secondary connections in the Parañaque-Las Piñas area. The projects are described as follows:

Table 10.11  
Southern Road Package

Category	Project Name	Length	Project Cost (₱ million)
Primary Artery	PS1: Talaba-Kawit Road	6.0 km	1,496
	PS3: Kawit-Bucandala Road	5.5 km	1,052
	PE1: Bucandala-Muntinlupa Road	16.0 km	5,450
Secondary Artery	SM21: Pasay Road Extension	5.5 km	4,805
Subdivision Road	Pasay Road Extension	2.7 km	---
	San Antonio/France Ave.	3.2 km	227
	President's Avenue/Aguirre/El Grande	8.1 km	---
	Don Jesus Blvd.	2.0 km	---
	Multinational Ave./A. Canaynay/J. Aguilar	6.2 km	202
Grade Separation	GS6: Roxas Blvd./Mia Road Intersection	---	480
Total		55.2 km	13,712

**Talaba-Kawit Road (PS1)** is an extension of the Coastal Road as a bypass for the existing Real Street and Tirona Highway. It will be connected to Kawit-Bucandala Road (PS3) and Bucandala-Muntinlupa Road (PE1) to form the initial grid the MMUTIS Master Plan proposed.

**Kawit-Bucandala Road (PS3)** forms a primary north-south link in Cavite when it is completed down to Dasmariñas. However, in the MTDP it will serve as a bypass to share the existing heavy traffic demand on Gen. Aguinaldo Highway at its critical section together with PS1.

**Bukandala-Muntinlupa Road (PE1)** will form the first east-west grid network in south Manila. The existing road network is a poor east-west link. Although it will not directly contribute in reducing the heavy north-south traffic demand, it will have a potential to change the existing radial share of traffic demand and give road users an alternative.

**Pasay Road Extension (SM21)** will serve as a secondary bypass for the South Superhighway between Lawton Avenue (Nichols I.C.) and Bicutan. It is expected to complement the link between Makati-Fort Bonifacio and the south corridor.

Opening existing subdivision roads to public traffic will improve the poor secondary network in the Parañaque-Las Piñas area. It includes the controversial Pasay Road opening in Dasmariñas Village in Makati. In the MMUTIS Mid-term Plan it is coordinated with a new secondary road development (Pasay Road Extension: SM21) to allow its maximum function as a secondary bypass for the heaviest corridors. The issue of whether low-density housing areas in a highly developed business district will be maintained or if they should be converted into higher-density housing areas with commercial buildings should be included in deciding the future land use of subdivisions. Land-use agreements of many existing subdivisions in Makati will expire in a few years. If a change in land use happens, opening key secondary roads would be highly possible.

**A grade separation** is also proposed at the intersection of Roxas Boulevard and MIA Road. This is one of the remaining primary-versus-primary intersections on Roxas Boulevard that is not yet provided with grade separation structure. It will also improve access to the airport.

Figure 10.2 shows a dotted line for **South Central Road (PS4)** in addition to other medium-term projects. The MMUTIS proposal on this road is to continue implementation studies to develop it in the next term. Parañaque-Las Piñas is already highly dense without arterial roads and is the tightest traffic bottleneck in Metro Manila because of its geographically narrow space for north-south corridors. This corridor development has been proposed several times in the past, but has not been implemented due to the difficulty in acquiring right-of-way. Despite this, the MMUTIS still proposes the development of this new road because traffic problems in south Manila can never be solved fundamentally without developing this corridor. It is recommended that further study for alignment alternatives, subdivision

locations and right-of-way acquisition should be continued, so that it can be projected as a high-priority project in the next medium-term plan.

### 3) Central Road Package

The Central Road Package includes a new secondary network and grade separations for the remaining key intersections between primary arteries to enhance the package's complementary functions in the urban area. All of the new secondary road projects proposed here will form bypasses for congested primary arteries in the urban area, mostly for EDSA, by utilizing intermittent, existing secondary roads. Although none of them are easy to be implemented, it is expected to greatly reduce traffic congestion on EDSA, C-3 and SLE. The projects are described as follows:

Table 10.12  
Central Road Package

Category	Project Name	Length	Project Cost (₱ million)
Secondary Artery	SM1: Aurora Ave. Extension to R-10	2.5 km	1,727
	SM2: A.M. Maceda & Extension to Aurora Blvd.	3.5 km	838
	SM3: F. Martinez Extension to Ortigas Ave.	1.7 km	523
	SM4: South Luzon Expressway Extension	1.8 km	2,709
	SM5: Gilmore Ave. Extension to Roosevelt	1.5 km	1,062
	SM6: Victoneta Ave. Ext. to Congressional Ave.	2.5 km	865
	SM17: Kalayaan Ave. Extension to 20th Ave.	1.0 km	725
Grade Separation	GS1: C-3-A. Bonifacio Ave. Intersection	---	480
	GS2: C-3-Quezon Ave. Intersection	---	480
	GS3: C-3-Aurora Blvd. Intersection	---	480
	GS4: España-Pres. Quirino Ave. Intersection	---	480
	GS5: Roxas Blvd.-Pres. Quirino Ave. Intersection	---	480
Total		14.5 km	10,849

**Aurora Avenue Extension (SM1)** and **A.M. Maceda & Extension to Aurora Boulevard (SM2)** will form a secondary circumferential link between C-2 and C-3. It will provide a better circumferential secondary connection in this area.

**F. Martinez Extension to Ortigas Avenue (SM3)** and **Gilmore Avenue Extension to Roosevelt (SM5)** will serve as secondary bypasses for EDSA between Quezon City and Mandaluyong. SM3 is also expected to improve the arterial network in San Juan.

**SLE Extension (Pres. Quirino Avenue–J.P. Laurel) (SM4)** will improve port access from the expressway.

**Victoneta Avenue Extension to Congressional Avenue (SM6)** will form a secondary bypass at the northern side of EDSA.

**Grade separation projects** are mostly planned for C-2 and C-3 corridors on their remaining at-grade intersections where heavy congestion is already observed. GS1, GS2, GS3, and GS4 are located on intersections where future urban expressways or LRT/MRT lines are planned. The actual design of these grade separations, therefore, should take these into account, and the structure should be underpasses rather than flyovers to avoid conflict with the elevated mega projects.

#### 4) Eastern Road Package

The Eastern Road Package includes secondary roads to provide new links over Marikina River and grade separations for primary intersections. The projects are described as follows:

Table 10.13  
Eastern Road Package

Category	Project Name	Length	Project Cost (₱ million)
Secondary Artery	SM18: New Marikina Road	3.2 km	1,242
	SM20: Col. B. Serrano Ext. to Marcos Hwy	2.0 km	1,438
Grade Separation	GS7: Marcos Hwy/Imelda Ave. Intersection	---	480
	GS8: Ortigas Ave./Imelda Ave. Intersection	---	480
Total		5.2 km	3,640

The biggest traffic problem in eastern Manila is the absolute shortage of bridges over the Marikina River for large traffic demand between eastern and central Manila. **New Marikina Road (SM18)** and **Col. B. Serrano Extension to Marcos Highway (SM20)** are new bridges between the cities of Marikina and Quezon that can mitigate the traffic problem on Marcos Highway.

**Grade separation projects** are proposed on the two busiest intersections in this area to provide better traffic flow. These are also recommended to be underpass structures rather than flyovers, due to possible elevated facilities over Ortigas or Imelda Avenue and the LRT No. 2 Extension Project over Marcos Highway.

#### 5) Improvement of Road Environment Facilities

Road environment in Metro Manila is generally very poor. One of the fundamental problems is the chaotic mixture of vehicles and pedestrians. Pedestrians are exposed to vehicular traffic in many locations along major corridors. The problem of narrow or no sidewalk is aggravated by sidewalk vendors, illegal parking, shops around LRT stations, and haphazard loading and unloading by jeepneys and buses. Pedestrians, who contribute too to the

problem by trying to cross main urban streets among high-speed vehicles or catch jeepneys and buses on main urban street carriageways, are under extreme danger. Street lighting should also be provided.

Unless pedestrian facilities are improved, this problematic situation for pedestrians and vehicles alike cannot ease. The MMUTIS proposes the following amount of sidewalk and street lighting improvement projects in critical locations:

Table 10.14  
Road Environment Facilities Improvement Project

Project Name	Length	Project Cost (₱ million)
Road Environment Facilities Improvement	50.0 km	2,000

### 6) Expressway, N-S Link (Skyway Stages 2 & 3)

The ongoing Metro Manila Skyway Project is an elevated expressway over SLE. Stage 1 covering the portion between Buendia Avenue and Bicutan Interchange (L=9.3 km) is under construction. The second stage is from Buendia to Pres. Quirino Avenue (L=2.5 km), from Bicutan to Alabang (L=7.8 km) over SLE, and from North Balintawak to C-3 over A. Bonifacio Avenue and North Diversion Road (L=3.0 km). The third stage covers the inner circular portion from A. Bonifacio Avenue to SLE over C-3 and Pres. Quirino Avenue (L=10.5 km). These sections and the estimated costs are shown as follows:

Table 10.15  
Metro Manila Skyway Project

	Project Portion	Length	Project Cost (₱ million)
Stage I	Buendia – Bicutan	9.3 km	20,000
Stage II	North Balintawak – C-3 <sup>2/</sup>	3.0 km	5,100 <sup>1/</sup>
	Pres. Quirino Ave. – Buendia Ave.	2.5 km	4,200 <sup>1/</sup>
	Bicutan – Alabang	7.8 km	13,300 <sup>1/</sup>
Stage III	A. Bonifacio Ave. – South Luzon Expway	10.5 km	17,800 <sup>1/</sup>
Total		33.1 km	60,400

1/ Costs for Stage II and III are estimated by MMUTIS.

2/ Although the current plan for the north end of M.M. Skyway is immediately after crossing over Balintawak Interchange, the MMUTIS proposes an extension of a few kilometers further north to provide better traffic flow at this section.

The portion from south EDSA to Bicutan opened in December 1998 and the Buendia-south to EDSA section in June 1999. The completion and operation of Stage 1 alone, however, will not provide a fundamental solution to the existing and expected congestion along SLE because access conditions on the northern side (Buendia, Pasay Road and EDSA) will remain the same.

The fundamental change in the situation along the Expressway can only be expected when the Metro Manila Skyway is finished, providing a direct NLE-SLE connection. This is the reason the MMUTIS places higher priority on the implementation of these sections over other urban expressway projects.

### 7) Expressway, Port Access (R-10/C-3)

The existing heavy congestion in Metro Manila has adversely affected port cargo traffic. With the implementation of a truck ban during weekday peak hours on many streets near the port and on EDSA for 15 hours from 6:00 am to 9:00 pm, only limited truck routes are available for cargo traffic. Figure 10.3 shows a port access improvement plan.

The R-10/C-3 Expressway Project is expected to play a key role in solving the port access problem. It is an elevated expressway from R-10 in the North Harbor to A. Bonifacio to be connected with the Metro Manila Skyway. The completion of this project will allow cargo traffic to pass without being hampered by urban congestion. However, this project will only function when connected with the Skyway to form the inner circular network. It should be implemented in the same timetable as the Skyway's.

Table 10.16  
R-10/C-3 Expressway Project

Project Name	Length	Project Cost (₱ million)
R-10/C-3 Expressway	7.5 km	12,700 <sup>1/</sup>

<sup>1/</sup> Estimated by the MMUTIS.

### 8) C-5 North Section

C-5 North Section is an ongoing DPWH project. It is planned under a BOT scheme as a tollway from C.P. Garcia to Letre Road. MMUTIS proposes to implement the eastern portion of the project from C.P. Garcia to NLE (L=15.0 km) in the medium-term plan. In the MMUTIS Master Plan the C-5 North Section is divided into two parts, PW1: C-5 North Section and PN4: C-5 North Extension, forming a grid pattern.

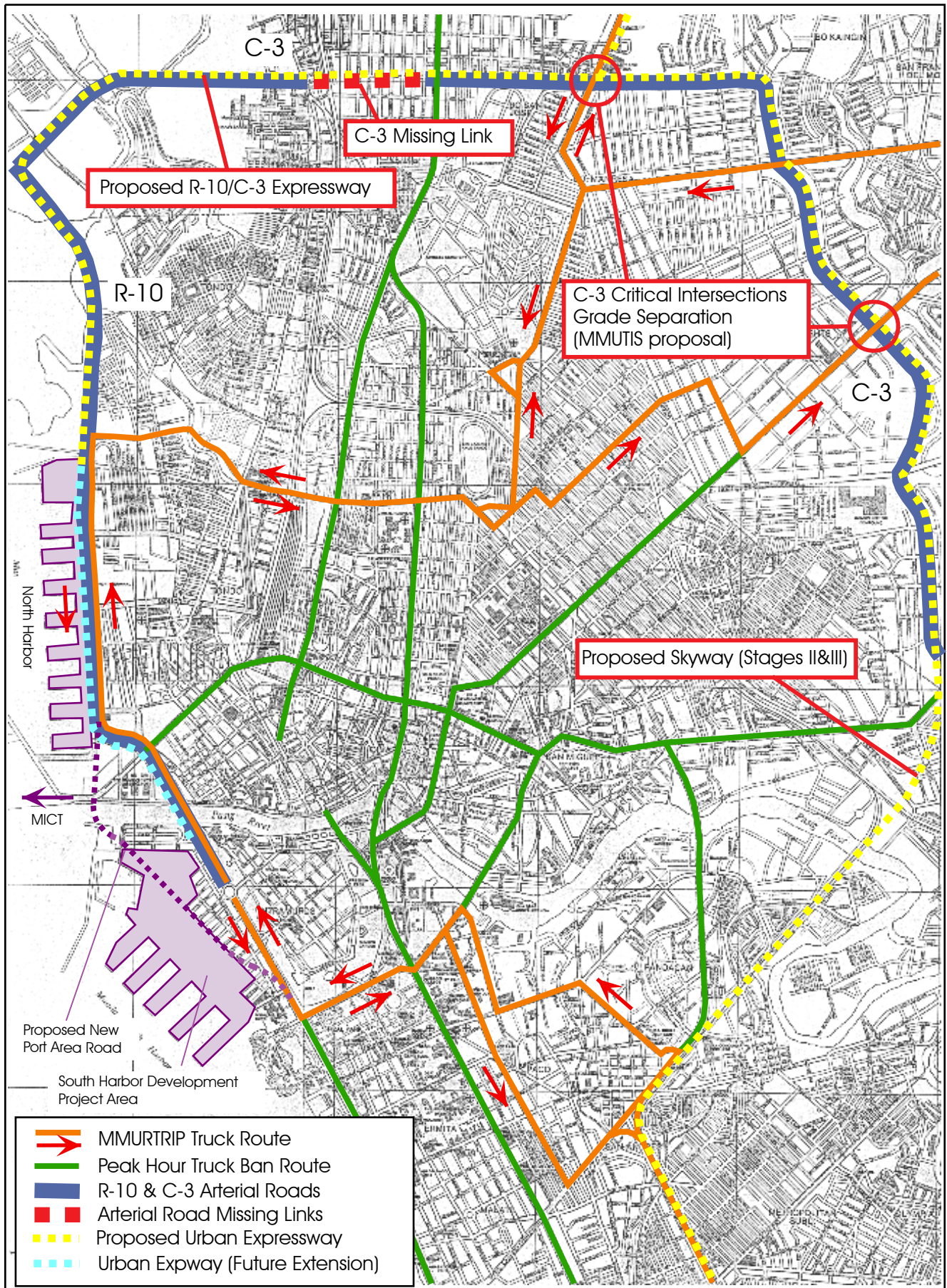
Table 10.17  
C-5 North Section Project

Project Name	Length	Project Cost (₱ million)
PN4: C-5 North Extension (C.P. Garcia – Fairview)	7.0 km	9,580 <sup>1/</sup>
PW1: C-5 North Section (Fairview – North Luzon Expwy.)	8.0 km	4,560 <sup>1/</sup>
Total	15.0 km	14,100

<sup>1/</sup> Estimated by the MMUTIS.



Figure 10.3  
Port Access Improvement Plan



## 9) Airport Access

Airport access is one of the issues that have drawn attention during the MMUTIS because of the new terminal projects for the Ninoy Aquino International Airport which are expected to enhance airport capacity. Terminal 2 is now under construction and will serve as a domestic terminal, whereas Terminal 3 is planned as a new international passenger terminal. In the future, all domestic and international passenger terminal operations will be handled by these two terminals, thus drastically changing the access traffic flow.

Figure 10.4 shows the present and future airport access roads and their improvement plan. Although it is a definite advantage for Metro Manila that a major international airport is near its central business districts, the glaring disadvantage is that the airport is surrounded by the most crowded arterial roads – Roxas Boulevard, EDSA and South Superhighway. The present major access points or intersections from these arterial roads to the airports are:

- Roxas Boulevard-Mia Road
- EDSA-Tramo Road
- South Luzon Expressway-Sales Road (Nichols Interchange)

The ongoing C-5 South Section (SLE-Roxas Boulevard) will provide few access points south of the airport. However, since most of the present access traffic is in the Terminal 1 area, congestion will still concentrate on the corridors of Tramo Road, Airport Avenue, Quirino Avenue, MIA Road, Domestic Road, and their intersections. When Terminals 2 and 3 open these routes will drastically change, and the main entrance will be Andrews Avenue in front of Terminal 3. The problem will not be the existing congested intersections stated above, but the already saturated condition of Nichols Interchange.

The airport access improvement plan, therefore, should focus on the improvement of the Tramo Road-Andrews Avenue-Sales Road-Nichols Interchange corridor. The first proposal would be a construction of left-turning flyovers for the EDSA-Tramo Road and Tramo Road-Andrews Avenue flows. The MMUTIS proposes the latter, since the former was already planned by the DPWH and the MRT 3 consortium. The second proposal, a major improvement of Nichols Interchange, provides a mixture of interchange function for through traffic and is where the west and east service roads are both located. The proposed improvements, therefore, will be:

- 1) Separation of the west and east service roads from the interchange function and terminating of the intersecting service road between the service roads and Sales Road-Lawton Avenue
- 2) Widening of the interchange bridge over the expressway on Sales Road-Lawton Avenue to enhance its capacity in this section.
- 3) Full cloverleaf improvement of the interchange to facilitate interchanging traffic flow.

Figure 10.4  
Airport Access Improvement Plan

