Qatar 2050 قطر
الخطة الشاملة للنقل
Transportation Master Plan

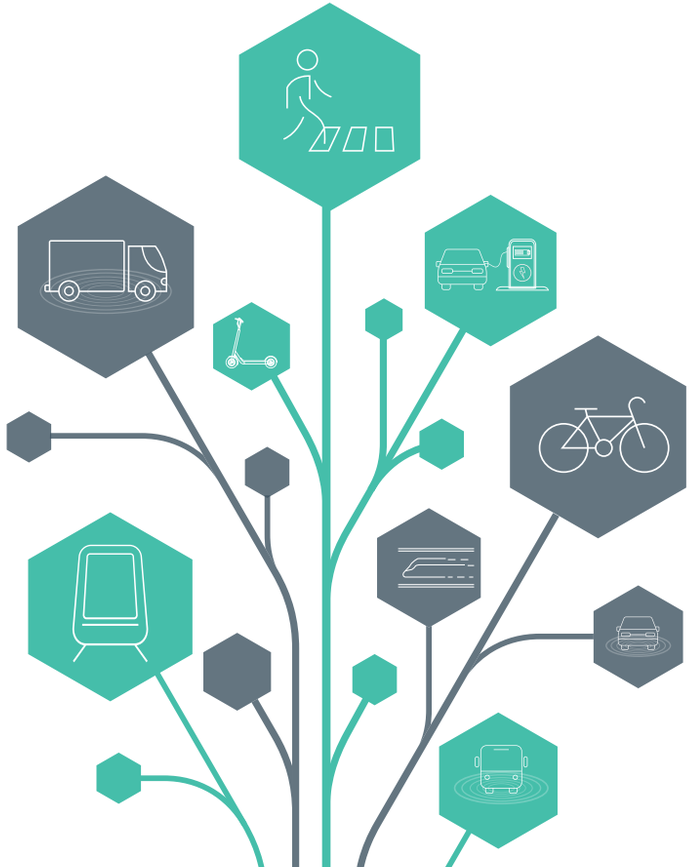
وزارة المواصلات
MINISTRY OF TRANSPORT

2050

Updating Transportation
Master Plan For Qatar
TMPQ

Guide for Planning Roads

نقل متكامل ومستدام للجميع
INTEGRATED & SUSTAINABLE TRANSPORT FOR ALL



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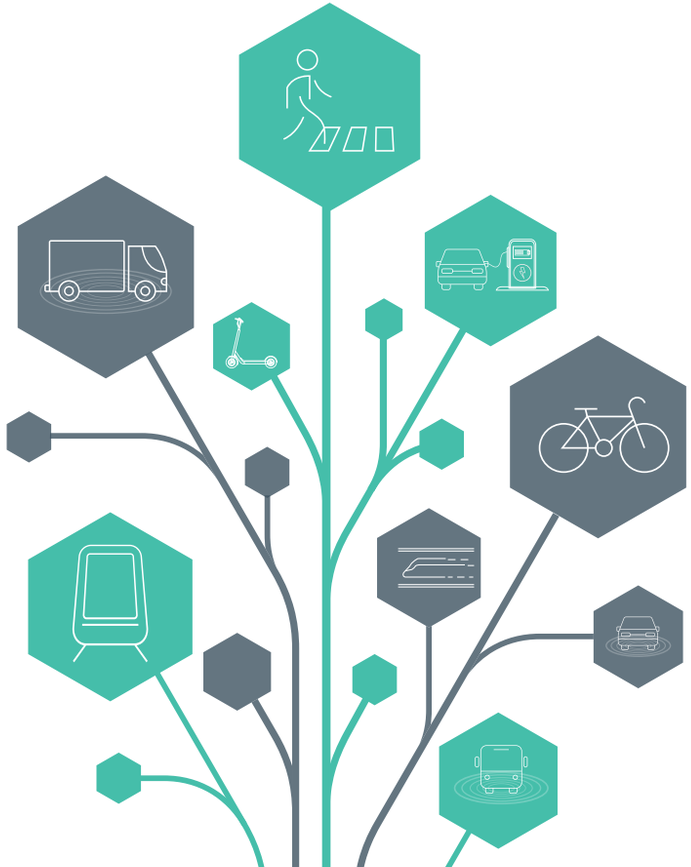
ملاحظة:

يرجى العلم أن أي إشارة أو ذكر لـ "وزارة المواصلات والاتصالات" واختصارها "MOTC" في هذا التقرير، أصبحت تشير حالياً إلى "وزارة المواصلات" و اختصارها "MOT".

Note:

Please note that any reference or mention of the "Ministry of Transport and Communications" and its abbreviation "MOTC" in this report, now refers to the "Ministry of Transport" and its abbreviation "MOT".



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مقدمة

يعتبر قطاع النقل البري أحد القطاعات الرئيسية في تطوير مختلف جوانب الحياة وضمان لنقل السلع والخدمات للأفراد والمجتمعات، كما يدعم نمو القطاعات الأخرى، مثل الزراعة والصناعة والتعدين والتجارة ويدفع التنمية المستدامة للمدن والمجتمعات والاقتصاد لتحقيق أهداف رؤية قطر الوطنية 2030.

ومن هذا المنطلق والتزاماً بمسؤولياتها قامت وزارة المواصلات والاتصالات بإعداد خطة النقل الشاملة لدولة قطر حتى عام 2050م بمشاركة ومساهمة العديد من الجهات الحكومية والخاصة والمختصين بهذا المجال.

توفر خطة النقل الشاملة لدولة قطر إطارًا شاملاً لمستقبل النقل البري فضلاً عن مجموعة متكاملة من المبادرات والمشاريع لخدمة جميع مستخدمي أنظمة وشبكات النقل البري، وذلك لتطوير مستوى خدمات النقل بما يتواكب مع النمو السكاني المتزايد في جميع أنحاء دولة قطر والتنمية الاقتصادية على مدار الثلاثين عامًا القادمة حتى عام 2050م. وهذه الخطة بعيدة المدى ستضع دولة قطر في المقدمة كأحد أكثر دول العالم استدامة من خلال توفير حلول نقل مبتكرة ومستدامة لدعم الاقتصاد، وتحسين جودة الحياة للمواطنين والمقيمين في دولة قطر مع الحفاظ على هويتها الوطنية.

واستمدت هذه الخطة مبادراتها وسياساتها وأدلتها من ركائز رؤية قطر الوطنية 2030، والتي تطمح إلى أن تكون دولة قطر في طليعة الدول المتقدمة، في ظل القيادة الرشيدة لحضرة صاحب السمو الشيخ تميم بن حمد آل ثاني أمير البلاد المفدى.

كما قدمت العديد من الجهات مساهمات وتعاوناً كبيراً في إعداد هذه الخطة الطموحة. ولمواصلة تطوير هذه الخطة وضمان تنفيذها بنجاح تحث وزارة المواصلات والاتصالات جميع الجهات الأخرى للاطلاع على هذه الخطة، والعمل معًا مسترشدين بها لتطوير أنظمة نقل بري متكاملة تلتزم بالأهداف الوطنية لمستقبل مزدهر ومستدام.

كما تؤكد وزارة المواصلات والاتصالات على التزامها بالعمل الجاد والدؤوب من خلال المشاريع والبرامج المستقبلية التي تهدف إلى بناء نظام نقل بري قائم على أحدث التقنيات وأفضل الممارسات في هذا القطاع.

Foreword

Land transportation is one of the key sectors that tremendously helps improve all aspects of life and ensures the delivery of goods and services to individuals and communities. It also underpins the growth of other sectors, such as agriculture, industry, mining and trade and drives the sustainable development of cities, societies and the economy in step with the objectives of the Qatar National Vision 2030.

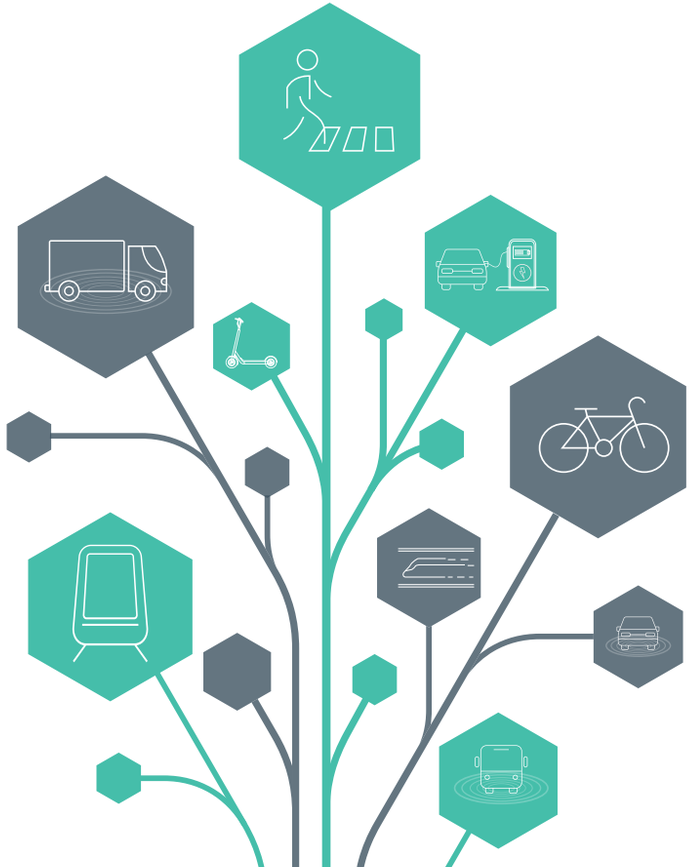
It is with this understanding that the Ministry of Transport and Communications (MOTC), in compliance with its responsibilities, has developed the Transportation Master Plan for the State of Qatar (TMPQ) with collaboration and input from multiple government and private entities and other relevant stakeholders and organizations.

The TMPQ provides an overarching framework for the future of land transportation that recommends an integrated set of transportation initiatives and projects for all users of land transportation systems, which will accommodate the population growth and a growing development momentum across Qatar over the next 30 years until 2050. This far-reaching masterplan can eventually bring Qatar to the forefront of world's most sustainable nations by providing innovative and sustainable transportation solutions that further boost the economy, improve the quality of life for citizens and residents, while preserving the national identity of Qatar.

The transportation schemes, initiatives, policies and manuals within TMPQ have been derived from the pillars of the Qatar National Vision 2030, which strive to place Qatar in forefront and the most advanced nations under the leadership of the Emir of Qatar, His Highness Sheikh Tamim Bin Hamad Al Thani.

A multitude of stakeholders played key roles and made very significant contributions to this ambitious plan. To continue that development and for successful implementation, MOTC encourages all other entities to familiarize themselves with the TMPQ and work together guided by this plan to develop integrated transportation systems that zoom on in the national objectives for a prosperous and sustainable future.

MOTC further stresses its commitment to working relentlessly on many future projects and programs and which aim to deliver a land transportation system that is based on latest technologies and best practices in the transportation field.



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Note: New findings, technologies, and topics related to the planning, designing, operating, and maintaining of transportation and traffic systems will regularly be used by MOTC to keep this report up to date. Users are encouraged to provide feedback through MOTC communication channels. Feedback will be reviewed, assessed, and possibly included in the next version.

تنويه

قامت وزارة المواصلات والاتصالات بإعداد هذا التقرير ضمن اختصاصاتها وصلاحياتها وفقاً لأحدث الممارسات العالمية في هذا المجال وبناءً على المعلومات، والإحصائيات والبيانات المتوفرة عند إعداد هذا التقرير. لذا إن استخدام هذا التقرير لأي عمل، لا يعفي المستخدمين من استخدام أحدث الممارسات العالمية، واتباع الأساليب الهندسية الصحيحة وفقاً لأحدث التقنيات العالمية المتبعة.

وعليه وجب التأكيد على أن وزارة المواصلات والاتصالات لا تتحمل أي مسؤولية مالية أو قانونية يمكن أن تُعزى إلى هذا الاستخدام، كما أنه لا يحق للمستخدمين المطالبة أو استلام أي نوع من التعويض عن أية أضرار أو خسائر.

وللحصول على نسخة من هذا التقرير، يجب التقدم بطلب رسمي إلى وزارة المواصلات والاتصالات في دولة قطر والذي يعد موافقة على ماورد في هذا التنويه. ويجوز للمستخدمين عرض محتويات التقرير ونسخها وطباعتها للاستخدام الخاص فقط، شريطة أن تحمل جميع النسخ والمطبوعات الخاصة بالمحتويات حقوق النشر وإشعارات الملكية وإخلاء المسؤولية الأخرى المعروضة على التقرير. كما لا يجوز للمستخدمين الإعلان أو النشر أو الإفصاح عن البيانات و / أو الكشف عن أي معلومات مدرجة في هذا التقرير على الإطلاق دون موافقة كتابية مسبقة من قبل وزارة المواصلات والاتصالات.

وفيما يخص التغييرات أو الإصدارات المستقبلية، ستقوم الوزارة بتوفيرها ويمكن الحصول عليها من خلال الاتصال بالإدارة المخولة في الوزارة، وعليه يتوجب على المستخدمين التحقق بشكل متواصل بأن لديهم أحدث إصدار من هذا التقرير.

ملاحظة: ستقوم وزارة المواصلات والاتصالات بمواصلة تحديث وتعديل هذا التقرير مع الأخذ بعين الاعتبار النظريات الجديدة وأحدث الأساليب التكنولوجية والمواضيع المُستجدة التي تتعلق بتخطيط وتحليل وتصميم أنظمة النقل والمرور.

إن وزارة المواصلات والاتصالات تشجع المستخدمين على تقديم الملاحظات والاقتراحات والتعليقات وردود الأفعال وذلك من خلال قنوات الاتصال الخاصة بالوزارة، وسيتم مراجعة هذه الملاحظات والاقتراحات ومن ثم تقييمها للنظر في إمكانية إدراجها ضمن الإصدار القادم من التقرير.

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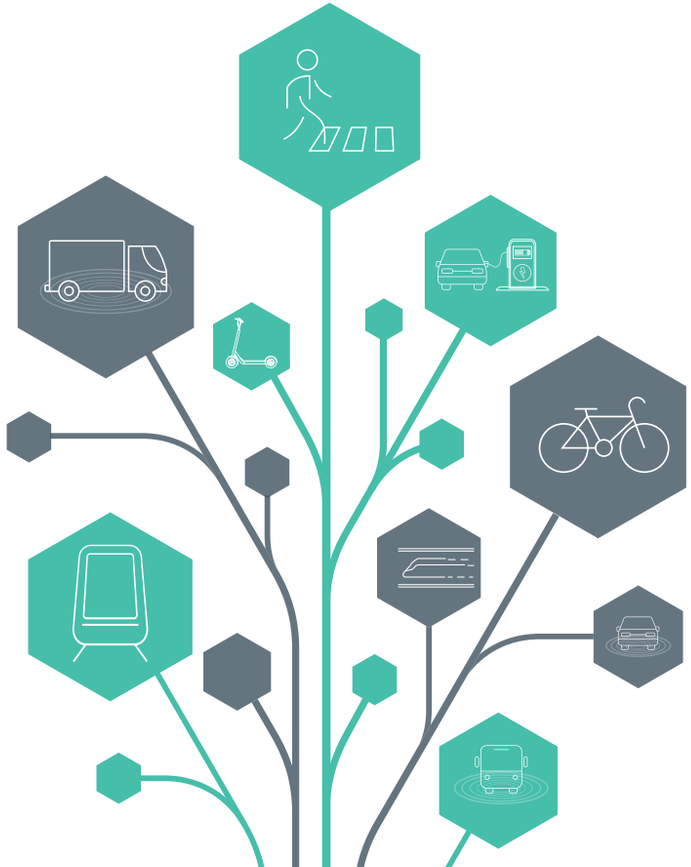

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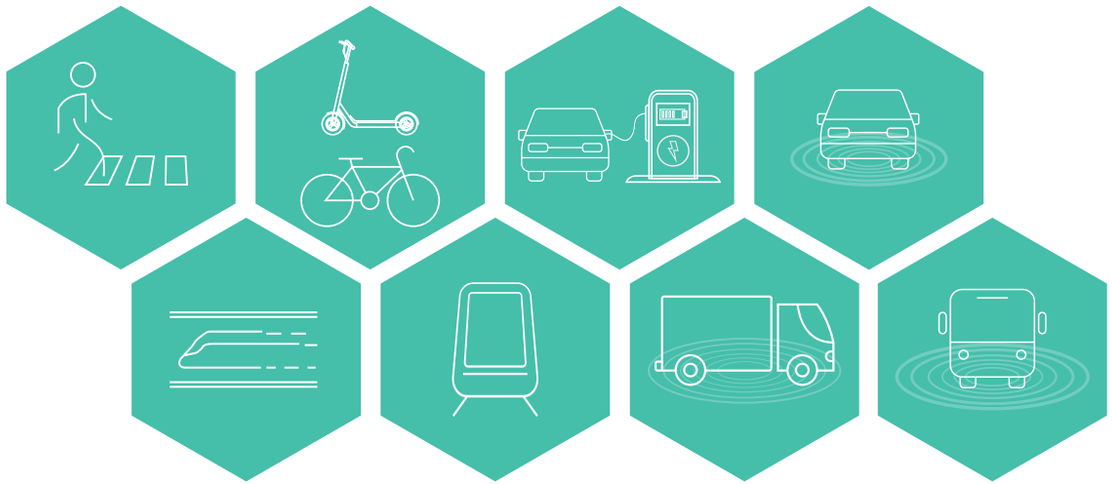
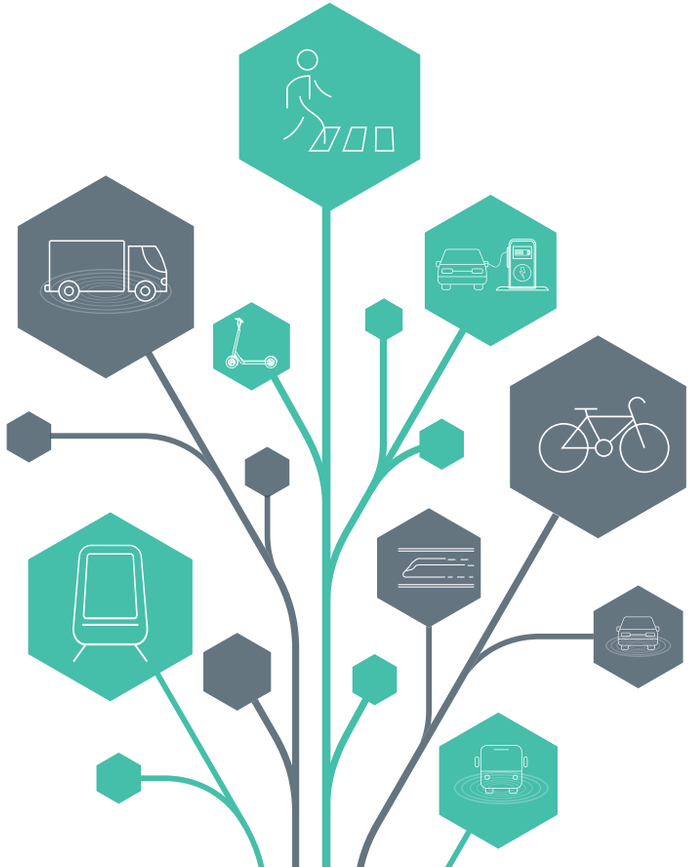
LIST OF ABBREVIATIONS



LIST OF ABBREVIATIONS

AADT	Annual Average Daily Traffic
ADT	Average Daily Traffic
CSD	Context Sensitive Design
DMA	Doha Metropolitan Area
GVW	Gross Vehicle Weight
KPH	Kilometers Per Hour
IPD	Infrastructure Planning Department
LOS	Level of Service
LTPD	Land Transport and Planning Department MMUP
MMUP	Ministry of Municipality and Urban Planning MME
MME	Ministry of Municipality and Environment MOTC
MOTC	Ministry of Transport and Communications
NSS	National Spatial Strategy 2032
QEZ	Qatar Economic Zone
QHDM	Qatar Highway Design Manual
QNDF	Qatar National Development Framework 2032 QNDS
QNDS	Qatar National Development Strategy
QNRSS	Qatar National Road Safety Strategy QNV
QNV	Qatar National Vision 2030
ROW	Right of Way

RPGQ	Road Planning Guide for Qatar
TAD	Technical Affairs Department
TMPQ	Transportation Master Plan for Qatar TOD
TOD	Transit Oriented Development
VPD	Vehicles Per day
VPH	Vehicles Per hour



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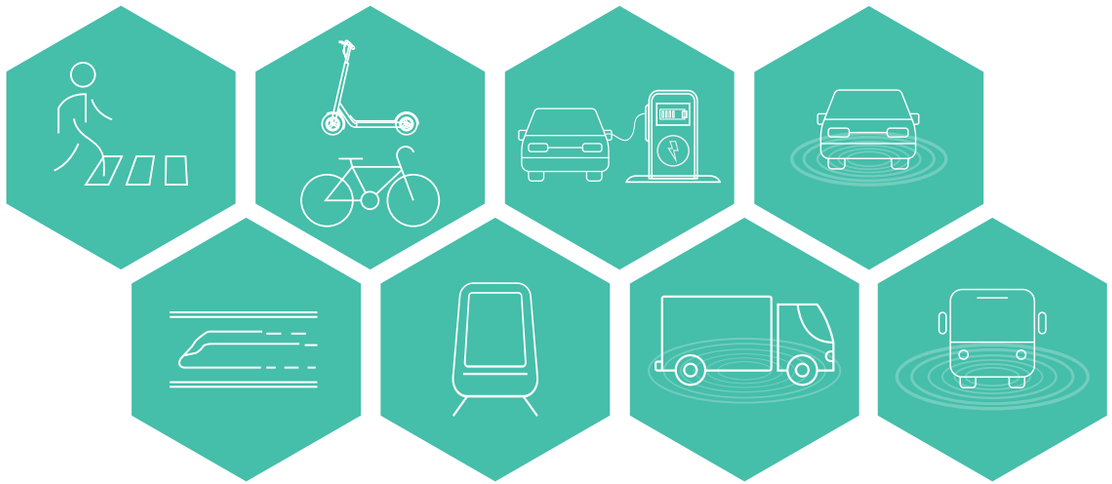
GLOSSARY



GLOSSARY

Accessibility: The degree to which a product, service, or environment is available to as many people as possible

Active Frontage: The frontage or edge of a building or space that has business or retail uses that open directly to the sidewalk, as opposed to blank walls, fences, and garages

Agglomeration: The location of businesses in close proximity to each other, which allows them to get productivity and efficiency gains through large customer bases, knowledge sharing and access to skilled workers

Amenity: A positive element that contributes to the overall character or enjoyment of an area

At-Grade Intersection: A junction at which two or more roads cross at the same level or grade

Average Daily Traffic: The average 24 hour vehicle traffic volume at a given location

Bicycle Lane: A bicycle lane is a narrow traffic lane set aside on a road for the use of cyclists

Bicycle Path: A Bicycle Path (or Cycle Path) is a track, path, track or lane designated for use by cyclists from which motorized traffic is generally excluded

Buffer: An area along the transport corridor with consistent width to separate traffic flows between different modes or to separate the corridor from adjacent urban development to enhance safety and protect urban environment. For example, to separate pedestrians and cyclists, or to separate vulnerable road users (pedestrians and cyclists) from vehicular traffic

Bus Lane: A lane of roadway intended primarily for use by buses, either all day or during specified periods. Also known as a transit priority lane or bus priority lane

Bus Rapid Transit: A bus-based mass transit system. A true BRT system generally has specialized design, services, and infrastructure to improve system quality and remove the typical causes of delay

Collector-Distributor Roads: These are limited access roadways provided within a single interchange, or continuously through two or more interchanges on a freeway/expressway segment. They provide access to and from the freeway, and reduce and control the number of ingress and egress points on the through freeway. They are similar to continuous frontage roads except that access to abutting property is not permitted.

Congestion: Condition involving slower speeds and longer trip times

Connectivity: The number of connecting routes within a particular area, often measured by counting the number of intersection equivalents per unit of area. An area may be measured for its 'connectivity' for different travel modes – vehicle, cyclist or pedestrian. An area with high connectivity has an open street network that provides multiple routes to and from destinations

Context Sensitive: Behaving or responding differently depending on a particular context

Curb: A structure with a vertical, horizontal, or sloping face placed along the edge of a pavement or shoulder forming part of a gutter, and strengthening or protecting the edge

Curb Radius: A geometrical measurement of the sharpness of the curb angle at intersections

Emergency Vehicle: A vehicle that is designated and authorized to respond to an emergency in a life-threatening situation

Frontage: The road alignment at the front of a lot. If a lot abuts two or more roads, the one to which the building, or proposed building, faces

Frontage road: The road running parallel to expressways or major highways providing indirect accessibility to the abutting property along the major highway

Functional Classification: Distinct "functional" categories based on the amount of travel a street is intended to accommodate

Grade Separation: The method of aligning a junction of two or more road axes at different heights (grades) so that they will not disrupt the traffic flow on other transportation routes when they cross each other

Interchange: A system of interconnecting roadways in conjunction with one or more grade separations, providing for the movement of traffic between two or more roadways on different levels

Intersection: An at-grade road junction of two or more roads either meeting or crossing

Lane: A strip of roadway used for a single line of vehicles

Level of Service: The Level of Service is the maximal hourly rate that vehicles can cross at aa point or a road section according to the road functional class and control condition

Link: A specific segment of a road corridor

Light Rail Transit: Typically, an urban form of public transport using the same rolling stock as a tramway, but operates primarily along exclusive rights-of-way and has vehicles capable of operating as a single train or as multiple units coupled together

Median: The portion of divided roadway separating the travelled ways for traffic in opposite directions

Mixed Use Development: A range of complementary uses within the same building, site or precinct. The different uses may be arranged floor by floor, or side by side. The uses may be residential, commercial, retail or institutional

Multi-Modal: The combination of two or more modes of transportation

Pedestrian Crossing: A designated place for pedestrians to cross a road

Parking Lane: A curbside lane on the roadway utilized primarily for the parking of vehicles

Peak Traffic Flow: Maximum traffic flow under given circumstances

Pedestrian Zone: An area where vehicular traffic is prohibited during certain periods, so it functions as a pedestrian area during business hours, but permits vehicular traffic at other times

Planning Principle: A list of appropriate matters to be considered in making a planning decision. They should be applied to promote consistency

Planning Standard: An operational requirement, physical dimension, or spatial direction for a road corridor

Productivity: The effectiveness of productive effort, especially in industry, as measured in terms of the rate of output per unit of input

Right-of-Way: An easement granted or reserved over the land for transportation purposes, this can be for a highway, public footpath, bicycle track, rail transport, etc.

Road Capacity: The maximum hourly rate at which vehicles can reasonably be expected to traverse a point (intersection) or section of a lane/roadway during a given period of time

Roundabout: An intersection at which traffic circulates counter-clockwise around a central traffic island; traffic entering the intersection is required to yield to vehicles on the circulatory roadway

Rural Areas: An area that is predominantly natural with little, or no, land use development

Service Roads: Roads that run roughly parallel with, and are connected to, the main through highway.

Setback: The horizontal distance from a boundary or building

Shared Path: An off-road path for cycling and walking

Shoulder: The portion of the roadway contiguous with the travelled way primarily for accommodation of stopped vehicles for emergency use and for lateral support of base and surface course

Shared Zone: A street where pedestrians, cyclists and vehicles share the roadway

Sidewalk: The portion of the roadway primarily for the use of pedestrians

Spatial Strategy: Defines how future population growth will be managed within a particular area

Speed Limit: The maximum (or minimum in some cases) speed at which road vehicles may travel legally on particular stretches of road.

Street Furniture: Structures, objects, and equipment installed on roads for various purposes and which contribute to the street scene (e.g., bus shelters, litterbins, seating, lighting, railings, and signs)

Sustainability: Identifies a concept and attitude in development that considers a site's natural land, water, and energy resources as integral aspects of the development

Sustainable Development: An approach to development that seeks to meet the needs of the present without compromising the ability of future generations to meet their own needs. It has economic, social and environmental dimensions.

Sustainable Transportation: Transportation by modes other than single-occupancy cars. Includes walking, cycling, bus, tram, train and carpooling.

Traffic Calming: Physical devices installed in streets to slow or reduce vehicle traffic and improve safety for pedestrians and cyclists. Traffic calming devices include speed humps, chicanes and lane narrowings, sized for the desired speed.

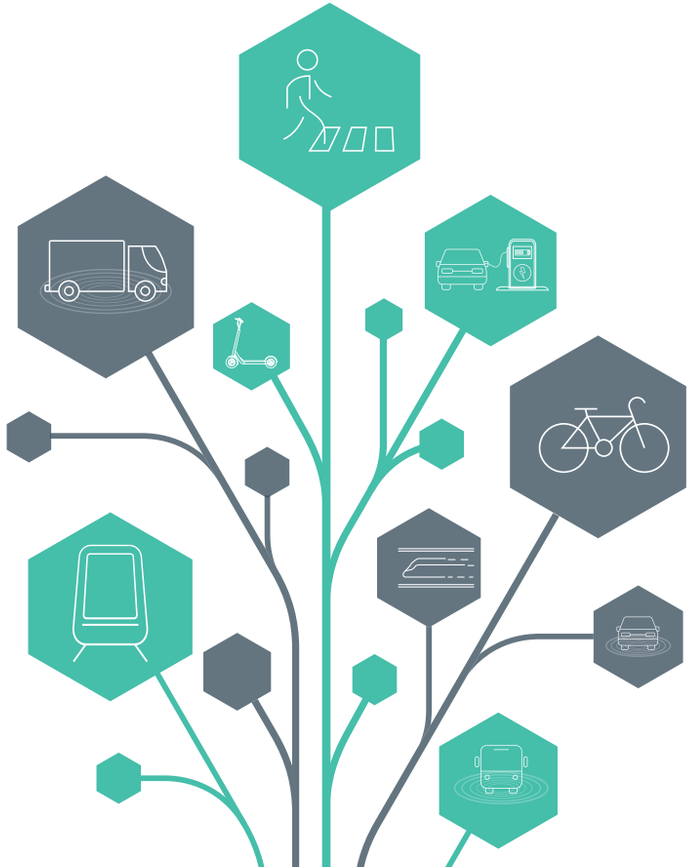
Transit-Oriented Development: Compact, walkable, mixed-use communities center on high-quality public transport systems. Transit-oriented development assists in addressing the growing problems of climate change and global energy security by creating dense, walkable communities that greatly reduce the need for driving and energy consumption.

Truck Route: A network designed for heavy truck traffic.

Underpass: A bridge, road, railway or similar structure that crosses under another road or railway.

Utility Corridor: Defined area for utilities.

Walkability: The degree to which an environment supports walking as a transportation mode, for instance by providing frequent, safe and attractive paths that connect common trip origins and destinations.



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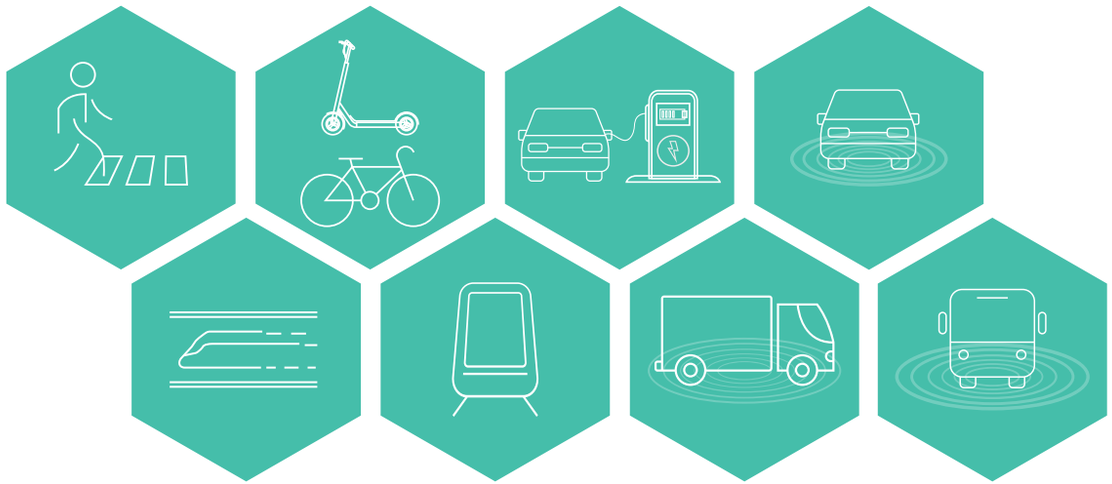

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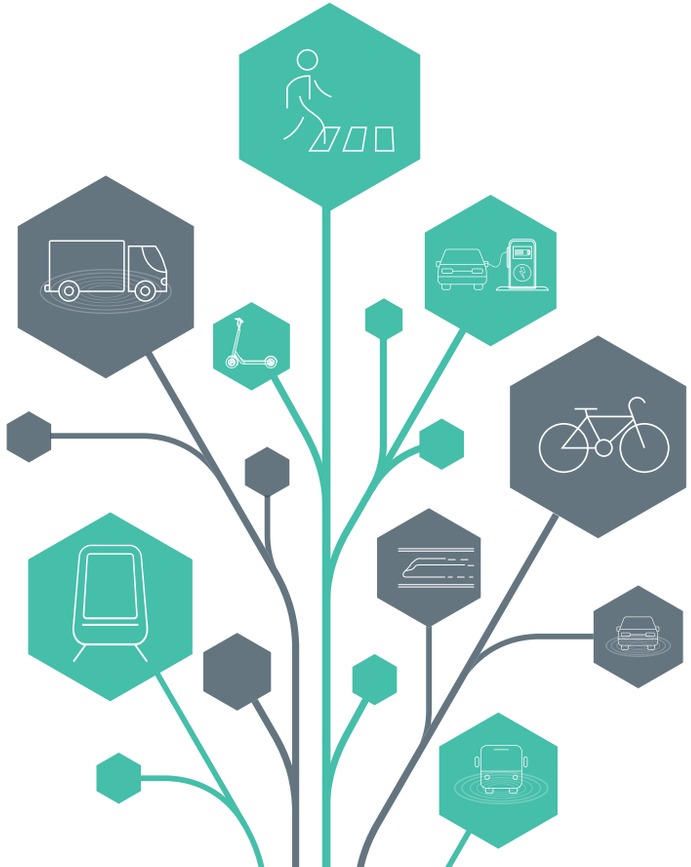

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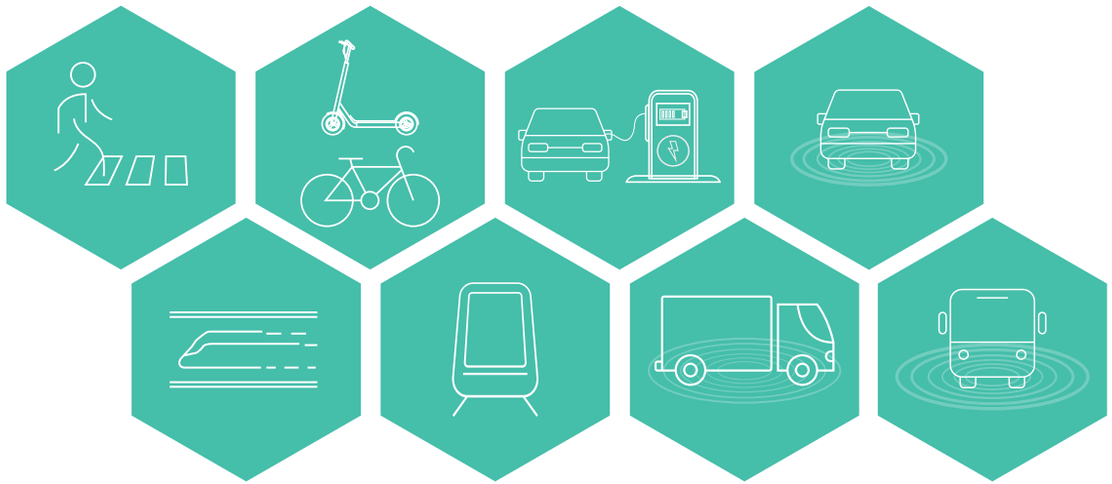
SECTION - 01

INTRODUCTION



1 INTRODUCTION

1.1 DOCUMENT PURPOSE

This document is an update to the *Guide to Planning Roads in Qatar* that was prepared in 2008.

The previous guide is over a decade old and its contents are somewhat limited, focusing largely on the identification of a future functional road hierarchy, and providing limited guidance for corridor specific issues.

Acknowledging these limitations, this revised guide seeks to ensure that Qatar has a safe, reliable and

accessible road network that supports the realization of broad economic and social outcomes described in recent government policy.

It seeks to better equip road planners and engineers to plan and design corridors that are context sensitive, and that serve a broader role within a community.

This new approach to planning places a much greater emphasis on ensuring that future, and where possible existing road corridors are designed to operate as part of an integrated multi-modal transportation system. Further, roads should place an equal, if not greater, priority on public transport, walking, cycling and freight movements, rather than just catering for movement by private vehicles.

This document should be used to inform **where roads go** (Section 4 - Network Planning Guidelines), **what they look like, and how they operate** *(Section 5 - Corridor and Link Planning Guidelines)*.

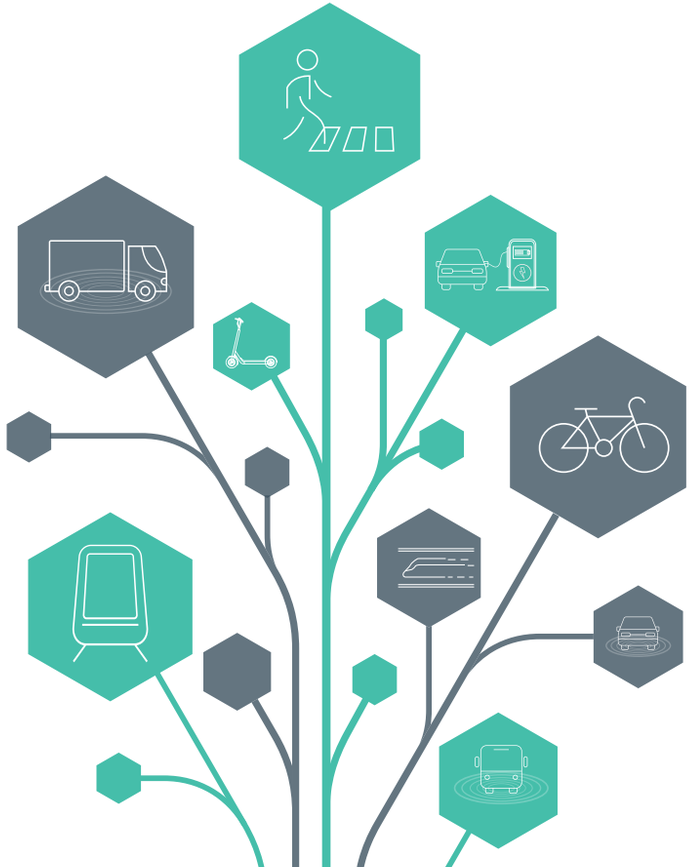
Reflecting the multitude of roles that road corridors play, this guide seeks to address the travel needs of people and business in terms of non-motorized transportation, public transport, private vehicles, and freight. It also seeks to manage the role of road corridors as important public spaces and the way in which they relate to their immediate context within towns, cities, or regional areas.

1.2 DOCUMENT STRUCTURE

The guide has been structured into the following sections

SECTION 2	**Relationship of this guide with other government policy** Identifies how careful road planning directly supports the realization of social and economic aspirations that have been identified in government strategies.
SECTION 3	**Road Planning in Qatar** Identifies the challenges currently faced within Qatar, and the framework around which road planning is to be undertaken.
SECTION 4	**Network Planning Guidelines** Describes the principles and standards that should be applied in the network planning process.
SECTION 5	**Corridor and Link Planning Guidelines** Provides specific planning principles and standards that should be applied at the corridor and link level.
SECTION 6	**Implementation** Summarizes the corridor and link planning principles and standards, and defines the assessment process that should be used when planning road corridors.

Appendix A	**Contemporary Approaches to Road Planning** Provides examples of modern road planning frameworks from around the world, as well as example boulevards and non-motorized corridors.
Appendix B	**Gap Analysis** Outlines where planning standards deviate from the updated QHDM and compares to international best practice.
Appendix C	**Typical Cross Sections** Provides cross sections for typical road corridors across Qatar.



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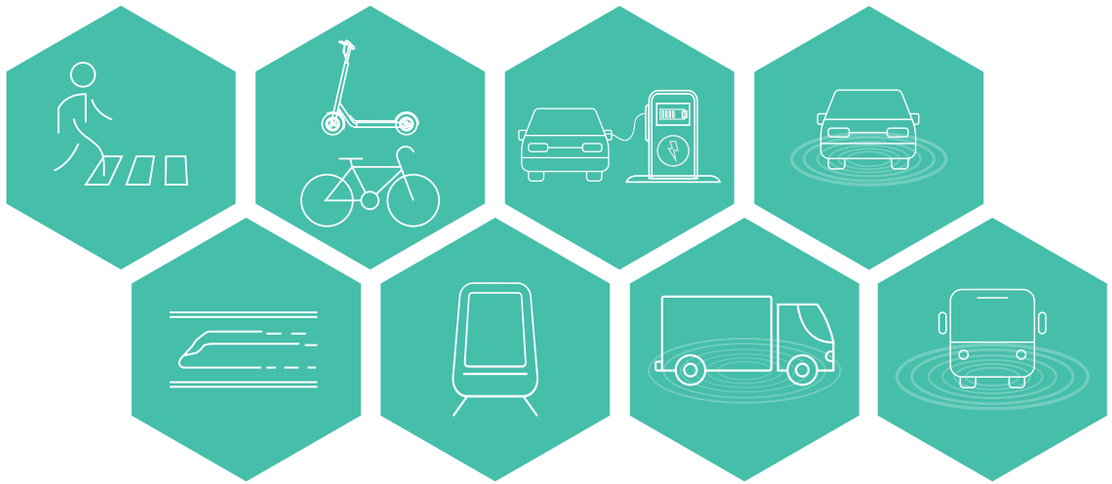
02

SECTION - 02

RELATIONSHIP OF THIS GUIDE WITH OTHER GOVERNMENT POLICY



2 RELATIONSHIP OF THIS GUIDE WITH OTHER GOVERNMENT POLICY

2.1 POLICY FRAMEWORK

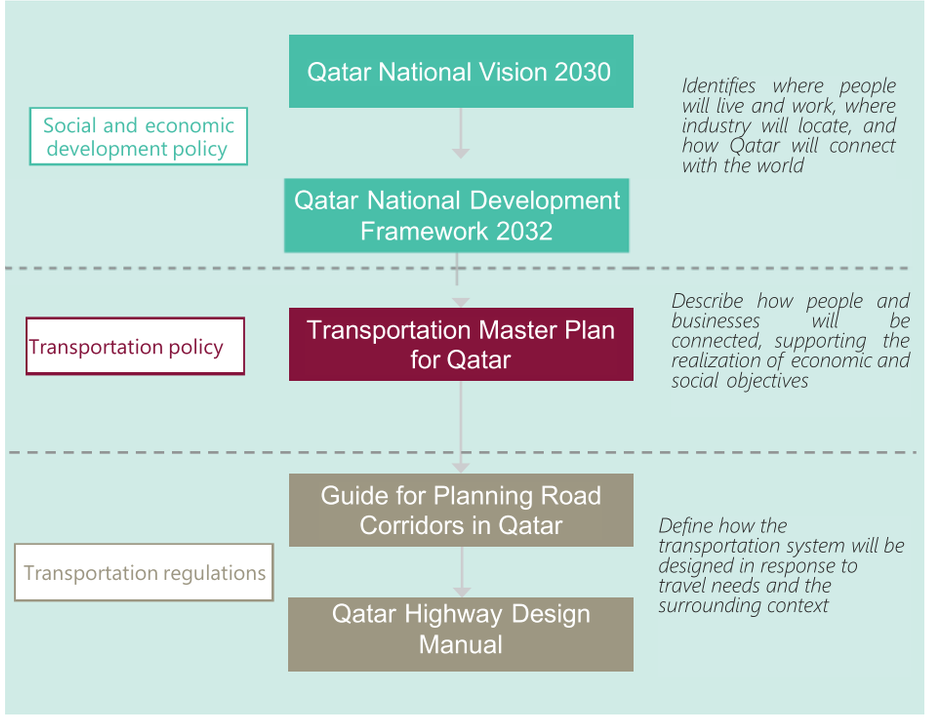
The road planning principles and standards contained within this guide have been informed by the social and economic aspirations outlined within the Qatar National Vision 2030 (QNV) and the Qatar National Development Framework 2032 (QNDF). This includes responding to the envisaged location of people and businesses across the State.

Through its application, this guide seeks to ensure that the road network plays its role in progressively realizing the long-term vision and aspirations for Qatar, whilst providing a safe environment for all road users.

Further, the Road Planning Guide for Qatar (RPGQ) directly supports the objectives that are outlined within the Transportation Master Plan for Qatar (TMPQ).

This guide supplements the Qatar Highway Design Manual (QHDM), outlining additional guidance for road planners. It should therefore be read in conjunction with the QHDM.

Figure 2.1 - Policy Framework



SECTION 2

2.2 QATAR NATIONAL VISION & QATAR NATIONAL DEVELOPMENT FRAMEWORK

The efficiency with which the road network links people, goods and places will be critical to achieving the QNV and the spatial strategies set out in the QNDF. The road network has a fundamental role in expanding people's choices in where to live and work, building stronger links between businesses and economic centers, and providing exporters with reliable access to domestic and international markets.

Qatar National Vision aims at ''transforming Qatar into an advanced country by 2030, capable of sustaining its own development and providing for a high standard of living for all its people for generations to come''.

This vision rests on the following four pillars:

1. **Human Development**: Development of all its people to enable them to sustain a prosperous society
2. **Social Development**: Development of a just and caring society based on high moral standards, and capable of playing a significant role in the global
3. **Economic Development**: Development of a competitive and diversified economy capable of meeting the needs of, and securing a high standard of living for, all its people for the present and for the future
4. **Environmental Development**: Management of the environment such that there is harmony between economic growth, social development and environmental protection

Further, the RPGQ support many of the drivers for change and policies found within the QNDF.

To support the **growth of tourism** roads must integrate public transport and provide safe and comfortable walking opportunities. This is really important if Doha is to become a competitive tourist attraction within the region.

Creating **livable neighborhoods** requires roads that accommodate non-motorized transport. Pedestrian and cycling facilities also enhance recreation and leisure opportunities.

Creating **active streets and public spaces** means thinking of roads not just from their mobility function, but also from the value they bring as public spaces. This means providing wide frontages to encourage activity such as outdoor dining and providing shading so that sidewalks can be used.

2.2.1 NATIONAL SPATIAL STRATEGY

The QNV is supported by the National Spatial Strategy 2032 (NSS), found within the QNDF. This provides a roadmap for future investment across the State, and helps to guide government and private developers.

The QNDF and the NSS is focused on the consolidation and efficient management of future growth within urban centers. It defines a hierarchy of centers (identified within the adjacent figure) based on population and employment density, government/municipality functions, and access to transportation.

The planning principles and standards found within this document directly relate to the unique characteristics of these future land uses.

Town Centers

Complement Metropolitan Centers by servicing catchments of town-wide

significance. They also provide convenience retail functions and accommodate district or branch offices of Government facilities.

Capital City Centers

West Bay, Downtown, Airport City

Nationally significant areas of administration and commerce with the highest quality built environment. They accommodate cultural, entertainment, and education facilities of national and international significance.

QP Industrial Cities

Ras Laffan, Dukhan, Mesaieed

These areas are strategically positioned to deliver the States on and off shore oil and gas production and provide related employment opportunities for the foreseeable future.

Urban Land

Away from denser centers within Doha Metropolitan Area (DMA) lies urban land that will predominantly accommodate lower density residential areas and Qatari neighborhoods. Extensive Qatari housing is forecast within the DMA.

Metropolitan Centers

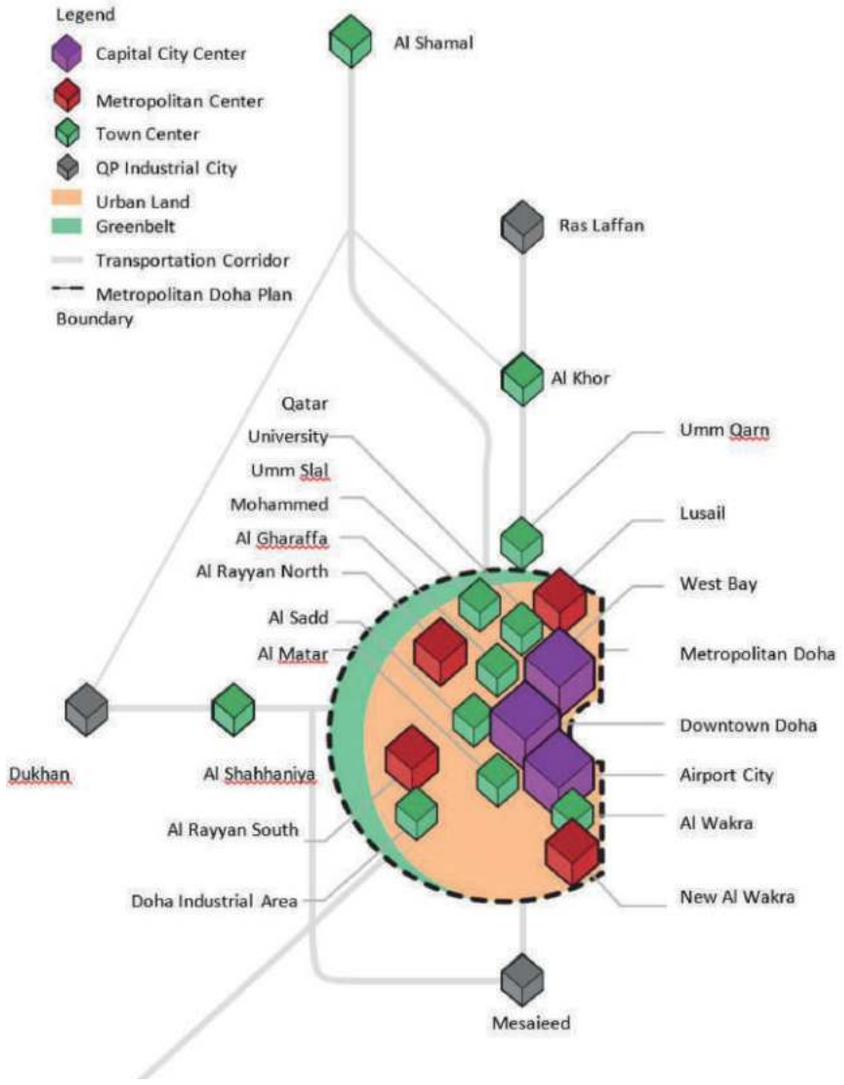
Lusail, New Al Wakra, Al Rayan South, Al Rayan North

Municipal significant nodes of key employment concentrations and secondary administrative focus. These areas serve catchments of city-wide significance.

Greenbelt Land

Outside urban growth boundaries for Metropolitan Doha and other major centers, greenbelts will be established to maintain compact urban areas and provide opportunities for the expansion of agricultural activities to secure future food supplies.

Figure 2.2 - National Spatial Strategy (QNDF 2032)



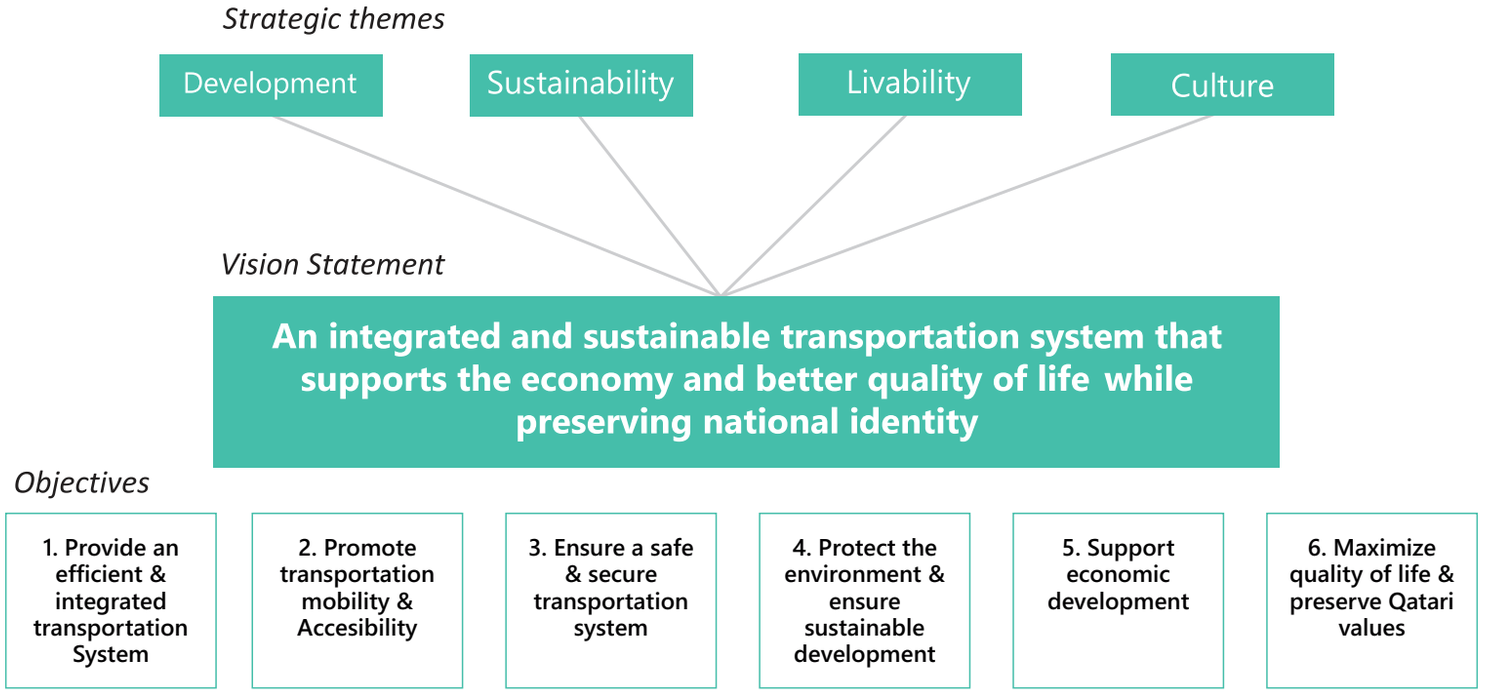
2.3 POLICY FRAMEWORK

In recent years the State of Qatar has experienced unprecedented economic and population growth. Large scale mega projects have been the focus of catering for this population growth, however, a lack of coordinated planning has led to many new residential developments only being accessible by private vehicles. This has led to an exponential growth in car ownership, and as a result road congestion is worsening across the State.

The Updated TMPQ seeks to cater for these changes and align the transportation network with the objectives of the QNDF. In particular there is a desire to reduce the reliance on private vehicles, prioritizing public transport modes that support Transit Oriented Development (TOD).

The RPGQ supplements the Updated TMPQ, providing guidance around the planning of road corridors. It is underpinned by the following strategic themes, vision statement and objectives for transportation in Qatar.

Figure 2.3 - Updated TMPQ Vision and Objectives



Further, the six objectives supporting the Updated TMPQ are identified within Figure 2.3 and are supported by the following targets which have guided the preparation of planning standards and guidelines contained within this document.

1. **Provide an efficient and integrated transportation system**
   - Minimize the operating costs of the transportation system
   - Reduce the amount of time spent by passengers traveling
   - Seek reliable movement of goods
   - Improve integration between different services and models.

2. **Promote transportation mobility & accessibility**
   - Increase the availability and attractiveness of public transport
   - Improve access to essential destinations
   - Provide an affordable transportation experience

3. **Ensure a safe and secure transportation system**
   - Reduce the number and severity of accidents.

4. **Protect the Environment & Ensure Sustainable Development**
   - Enhance transportation energy and fuel efficiency
   - Protect the streetscape and urban realm
   - Ensure sustainable development

5. **Support Economic Development**
   - Improve access to the workforce
   - Improve access to international markets
   - Improve the travel experience for tourists
   - Improve integration between transportation and land use planning.

6. **Maximize quality of life and preserve Qatari values**
   - Promote transportation systems that enhance quality of Life
   - Promote transportation systems that preserve Qatari norms and culture

2.4 QATAR HIGHWAY DESIGN MANUAL

The QHDM provides guidance for developing road designs that are environmentally sensitive, safe for all users and cost-effective.

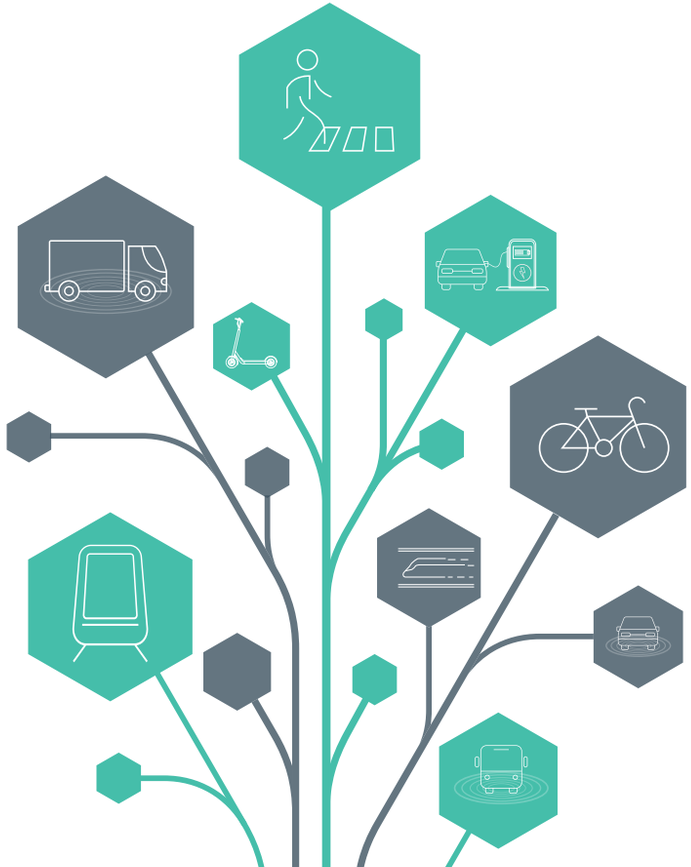
The requirements contained within the manual relate to the design of all types of rural and urban roadways in Qatar.

The manual covers very specific aspects such as roads/highway, road corridor pavement, drainage, utilities and structure design. The RPGQ is not intended to replace the QHDM, but support its application.

The latest version of the QHDM (2020) contains three volumes. Volumes one and two contain requirements and guidelines, whilst the third volume addresses the environmental process, landscaping safety and design departures.

The manual uses the functional classification as the primary design control, however, provides detailed guidance and specifications around design vehicles, driver performance and human factors, traffic characteristics, access control and management, speed, facilities for pedestrians and cyclists, and parking.

Sustainability is at the core of the guidance provided in the manual, seeking to ensure that any road design optimizes economic, social and environmental performance. The theme of sustainability is also a central focus for the RPGQ.



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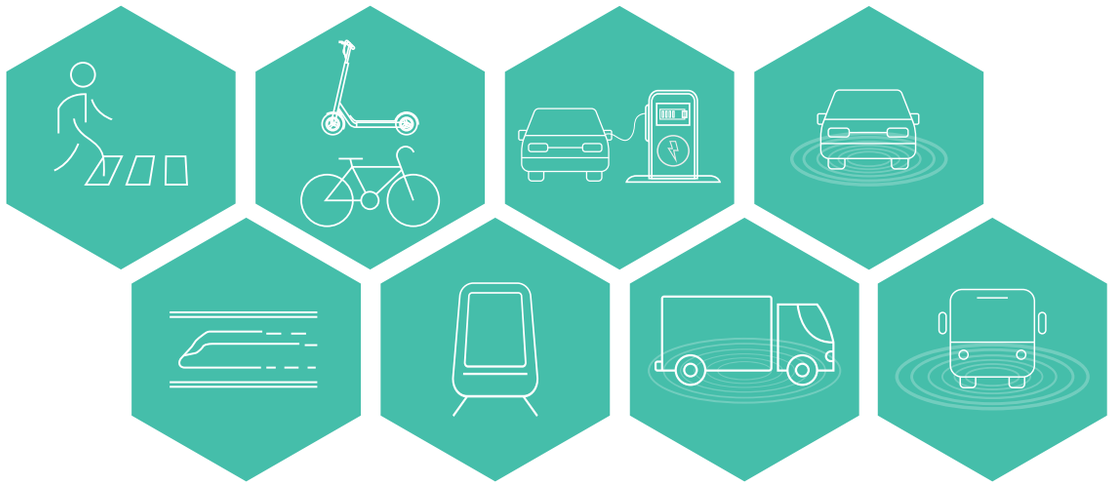
SECTION - 03

ROAD PLANNING IN QATAR



3 ROAD PLANNING IN QATAR

3.1 THE ECONOMIC AND SOCIETAL IMPORTANCE OF ROADS

As identified within Table 3.1, roads are critical to the success of Qatar's economy and the prosperity of its society. Roads connect businesses to customers and suppliers across the State and, via transportation gateways, to international markets. Roads influence where people choose to live and the employment opportunities that are available to them.

More than just facilitating travel, roads are also part of the fabric of the community. They are important public spaces that afford opportunities for social interaction and physical recreation. They are the platform through which visitors experience Qatar and therefore influence perceptions of the country and its international appeal. The expansion of the road network demonstrates the story of Qatar's rapid growth.

Table 3.1 - The Role of Roads

Housing Choice	Accessibility influences housing affordability and choice. Those areas with good access to jobs and services can become unaffordable. By expanding public transport coverage, disparities in pricing can be reduced. Increased affordability and housing supply can also increase the attractiveness of Qatar creating additional positive flow on effects for the economy.
Economic Opportunity	Accessibility influences the number and variety of available jobs and the areas in which people can feasibly relocate without changing jobs. By increasing accessibility of major centers, the road network can provide residents with greater choice of jobs and businesses with greater choice of employees, lifting the State's economic productivity and the community's economic prosperity.
Health and well-being	Accessibility, amenity, and safety heavily influence the probability of people participating in physical activity. A road network that provides high quality pedestrian and bicycle facilities provides the community with greater opportunity to be physically active and can therefore improve the health and well being of Qatari society.
Critical Service Accessibility	Accessibility directly influences the attainment of education and healthcare, and the opportunity for residents to participate in social activities. A neighborhood road network that supports pedestrian, bicycle and public transport movements will ensure that all residents can fully participate in society. Further, a road network that links residential neighborhoods to major centers will provide greater choice of education, healthcare, leisure and cultural facilities.
Business Links	Accessibility reduces the distances between businesses and increases the potential for the growth of agglomeration economies. A road network that improves connectivity between economic centers and businesses enables greater clustering, specialization and knowledge sharing which can increase economic productivity.
Global Connectivity	Accessibility to transport ation gateways such as Hamad Port and Hamad International Airport influences the costs of goods and services and the competitiveness of Qatari businesses in international markets. Transport is a major component of supply chain costs and a reliable road network makes businesses more efficient and increases their capacity to invest.

3.2 THE NEED FOR GOOD ROAD PLANNING

Careful road planning is important to ensure the amenity and safety of the community, to provide a network that is efficient, reliable and productive, and to cost-effectively meet the long- term challenges posed by sustained population growth.

3.2.1 ENSURING ROADS DO NOT COMPROMISE THE AMENITY AND SAFETY OF TOWNS AND CITIES

Careful road planning can also mitigate the potentially negative amenity or safety impacts of road networks.

This might include diverting certain types of trips or vehicles away from certain areas or adjusting performance standards such as speed limits in areas of high pedestrian activity. By recognizing the public space aspect of roads in addition to their transportation function, road planning can ensure that the network makes a positive contribution to urban areas.

3.2.2 INCREASING THE ACCESSIBILITY, CONNECTIVITY, AND EFFICIENCY OF THE TRANSPORTATION NETWORK

Road planning can ensure that the network operates as efficiently as possible. As the population of Qatar grows into the future and the neighborhoods across Doha increases, the transportation task for roads will evolve. Proper road planning can identify how government investment can respond to these changes from both an infrastructure and operational perspective.

This may include increasing road network capacity through additional travel lanes, or, where the ROW is constrained, though reallocating road space to public transport.

Proper road planning can also define where improved or new connections are required that may enhance the State's economic productivity and prosperity. This may include providing stronger linkages between economic zones and transportation gateways, such as Hamad Port and Hamad International Airport, which connect those zones to international markets.

3.2.3 STRATEGICALLY RESERVING CORRIDORS FOR THE FUTURE

Forward-looking road planning can reduce the cost of servicing Qatar's growth. Reservation of road corridors in response to land use planning can ensure those corridors can support the most appropriate modal mix to service the projected future population and that the long-term transportation demand can be catered for in a way that mitigates the potential for increasing congestion.

3.3 ROAD PLANNING STAKEHOLDERS

The road planning process should be collaborative and involve a wide range of stakeholders, such as transportation and land use planners, engineers, business and transport operators, the community, and the State government.

Table 3.2 identifies these major stakeholders and their involvement in the planning of road corridors in Qatar.

Table 3.2 - Roles and Responsibilities of Road Planning Stakeholders in Qatar

Stakeholder	Responsibility
MME - Urban Planning Department (UPD)	Responsible for approving planning studies and concepts for new developments.
MME - Infrastructure Planning Department (IPD)	Responsible for planning and approving right-of way (ROW) for all amenities required for a development.
MOTC - Land Transport and Planning Department (LTPD)	Responsible for developing transportation policies for the State.
MOTC - Technical Affair Department (TAD)	Responsible for approving planning studies for public transport and new technologies.
Ashghal - Public Works Authority (PWA)	Responsible for designing, delivering and maintaining all infrastructure related projects as well as public amenities.
Qatar Rail	Responsible for the design, construction, commissioning, operation and maintenance of the metro network, as well as the Lusail Tram network.
Mowasalat	Responsible for the operation of 50 bus routes across the State, as well commercial passenger vehicles.
Developers and Consultants	Responsible for delivering specific elements of the broader planning/transport strategy.

3.4 THE FUNCTIONAL CLASSIFICATION

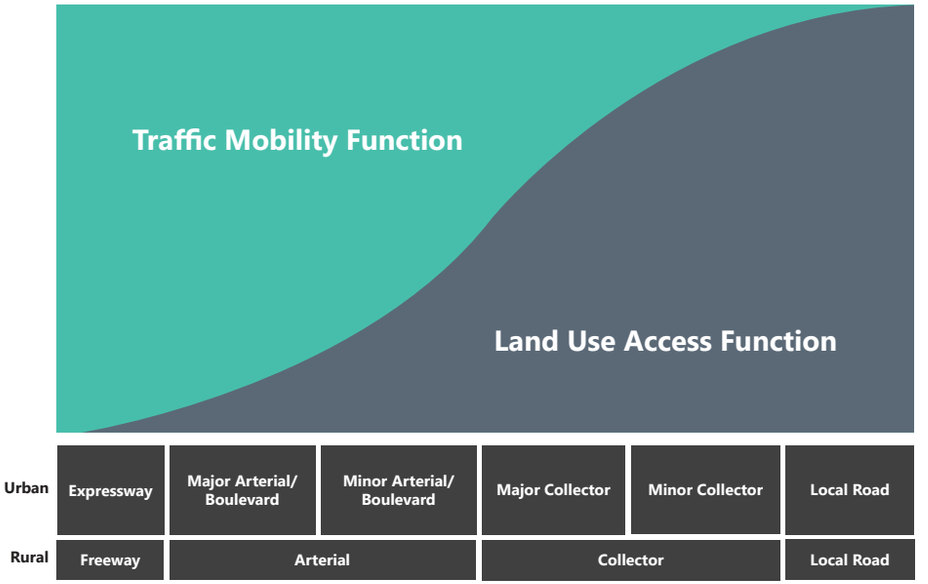
The functional classification is a critical consideration in the planning of a road network or a particular corridor. This method is premised on a hierarchy of roads, and defines the categorization of each corridor based on its role in either efficient mobility (measured in terms of vehicular speed and travel times between destination) and providing access to properties or businesses.

Figure 3.1 demonstrates this relationship between mobility and access, and maps the road classifications that are currently found within Qatar.

For each classification of road there are baseline planning principles and standards which form the starting point for defining a cross-section.

Section 5 of this guide outlines how other factors such as modal provision and adjacent land uses may alter these guidelines, ensuring that a road corridor is context sensitive.

Figure 3.1 - Functional Classification Used in Road Planning



3.5 CHALLENGES TO BE ADDRESSED

Before the long-term aspirations of the road network can be realized, there are some existing challenges which need to be overcome. Primary among these is the increasing congestion within DMA. Other key challenges include: a lack of alternative transport choices, unreliable access to key centers, low levels of compliance, and achieving sustainability objectives.

3.5.1 INCREASING CONGESTION

Over the last few years the use of private motor vehicles has increased exponentially in Qatar, owing to population growth, increasing levels of income and vehicle ownership, and a capital works program that is heavily focused on roads.

As a consequence, congestion is increasing and many key routes within DMA are operating close to or beyond their capacity during peak times.

These include the following roads: Doha Expressway, Salwa Expressway, Al Rayyan Road, Al Luqta Street, Al Furousiya Street, roads in Industrial Area, Al Matar Street, Najma Street, Mohammed Bin Thani Street, Majlis Al Taawon Street, Corniche Street, A-Ring, B-Ring, C-Ring, Khalifa Street, Istiqlal Street.

This is exacerbated further by legacy planning issues and design constraints, including the inadequate spacing of junctions on arterial roads (e.g B and C ring roads).

In some cases the ability to increase road capacity is restricted due to a constrained ROW. This is particularly the case on the C and D Ring Roads It is therefore essential that road planning carefully balances the needs of these cases. The most effective option to increase the efficiency of a road corridor is to encourage the use of mass transit.

3.5.2 LACK OF ALTERNATIVE TRANSPORT CHOICES

Across the state there is a lack of feasible transport choices for commuters, resulting in the current public transport mode share being less than 1% (although this is expected to increase significantly with the operation of Doha Metro).

Despite Mowasalat operating over 50 bus routes, the use of general traffic lanes means that these services are unreliable, and do not pose a feasible transport choice for many commuters. The use of dedicated bus lanes is one way that services can become more reliable, journey times can be improved and as a result the bus system can become more attractive.

Further, there is a lack of adequate pedestrian and cyclist facilities which discourages the use of non-motorized transport and reinforces the use of private cars even for the shortest of trips. This also contributes to the extremely low public transport mode share as the first and last mile from many metro and bus stations must involve a private vehicle instead of a bicycle ride or walking.

Ensuring that roads are planned for all transport modes will assist in addressing the mode shift towards public and non-motorized transport as is the objective of the QNV and QNDF.

3.5.3 UNRELIABLE ACCESS TO KEY CENTERS

With the growth of major employment centers, industrial precincts and transport gateways, it is essential that the road network provides reliable and efficient movement of people and goods.

Currently several major arterial roads leading to the Capital City Centers are at or over capacity. If the efficiency of moving people along these key corridors is not addressed then the potential for these key employment hubs may be restricted in the long- term.

As the number of passengers moving through Hamad International Airport continues to increase, significant demand will be placed on landside facilities and accessibility.

Further, operations at the New Hamad Port (and the surrounding QEZ3, as well as Mesaieed Industrial City) will require high standard road links to the national road network to enable efficient movement of trucks. The expansion of port operations will place increasing pressures on current logistics systems.

It is therefore essential that the road network and supporting transport network is planned with key centers in mind, and prioritizing particular modes on certain routes.

3.5.4 COMPLIANCE WITH TRANSPORTATION POLICIES

Across the state there are high levels of non-compliance with respect to current transportation management policies.

This is particularly the case for parking, with many private vehicles found on sidewalks and in areas where car parking is prohibited (several major arterial and collector roads). This is contributing to cases of congestion, but is also a major safety issues and the number of fatalities and injuries from road accidents in Qatar is improving but is still high.

Further, speeding is a major challenge across the state that if not carefully managed will continue to pose issues of safety.

Without a coordinated effort to develop specific transportation policies and a strong will to enforce these policies several major issues cannot be overcome.

3.5.5 ACHIEVING SUSTAINABILITY OBJECTIVES

Both the QNV and Updated TMPQ stress the importance of sustainability and optimizing resource usage and protecting the built and natural environment.

In Qatar, transportation is one of the major causes of pollution and environmental impacts in urban developments. This is largely due to the high usage of private vehicles.

Increasing the public transport mode share will help to ensure a more sustainable transportation system. The government is already working towards this with the introduction of three mass transit rail lines (Doha Metro), introduction of Light Rapid Transit (LRT) in Education City, Lusail and Msheireb, and expanding the coverage of the bus network. There is also a desire to introduce electric buses onto the network.

However, to increase the attractiveness of public transport, road corridors must be planned to priorities mass transit and non-motorized transport. This requires a greater focus on the multi-modal function of roads.

3.6 GUIDING PRINCIPLES

Road planning in Qatar seeks to be outcomes focused. This means understanding the role of the road network in fulfilling the economic, social, and environmental ambitions for Qatar and structuring an approach to road planning that recognizes and facilitates this role.

Overall, the directions presented in this guide seek to build a road network that is:

1. **Safe** and accessible for all road users;
2. **Context sensitive**, creating positive public spaces and integrating with the various precincts and neighborhoods of the city;
3. **Efficient and productive**, shifting perspective from the movement of vehicles to the movement of people and goods;
4. **Sustainable**, with a minimal environmental footprint and social impact; and
5. **Flexible**, reducing the cost of accommodating future growth and enabling opportunities presented by technological disruption to be embraced.

These five points are the guiding principles around which this guide has been structured.

Guiding Principle 1:

Safe

Qatar's road network must be safe and accessible of all road users, including pedestrians and cyclists as well as those who may have particular needs such as children, senior citizens or the mobility impaired. Safety is enhanced when the most vulnerable road users are considered first. This is particularly important in denser urban areas where pedestrian activity is heightened. Safety can be managed through the vertical and horizontal separation of modes and the management of vehicle speeds.

Guiding Principle 2:

Context Sensitive

Qatar's road network must respond to and be integrated with land use. Roads are an important public space and have a significant influence on the character and amenity of a place.

Road planning should be cognizant of this role and respond to the drivers of the land use in the immediate context and recognize relevant aspirations set out in long-term land use policy. Character and amenity can be impacted by road widths and the ability to cross roads, vehicular speeds and noise, and landscape design. Further, consistent with the Updated TMPQ, road planning must be responsive to local culture.

Guiding Principle 3:

Efficient and Productive

Qatar's road network must operate efficiently and productively. Road planning should focus on the movement of people and goods rather than vehicles. This shift in perspective may necessitate a prioritization of modes that can carry greater numbers of people or move people more efficiently within a given space. It may require discouraging some types of trips so that road capacity can be used for its highest value purpose. It may also lead to the accommodation of higher productivity vehicles that can move larger loads and reduce transport costs.

Guiding Principle 4:

Sustainable

Qatar's road network must be planned to balance social, economic and environmental impacts. The quality of road infrastructure and operations influences travel choices. Reliable and punctual public transport is more attractive to people and can capture a higher share of trips. Safe and climatically sensitive sidewalks or bicycle lanes reduce barriers and enables more people to participate in physical activity. Such improvements can reduce the environmental footprint of the transport system and improve the well-being of Qatari society.

Guiding Principle 5:

Flexible

Qatar's road network must facilitate the State's growth. Roads designed and constructed today must ensure that they are capable of accommodating the aspirations for and demands of tomorrow. This means ensuring road corridors can accommodate long-term projected demands and modal priorities. It also requires consideration of how the operation or use of roads may change through technological progress such as Autonomous Vehicles. A flexible road network cannot only reduce the costs of adapting to change, but it can also enable Qatar to more efficiently embrace the opportunities that change creates.

Further, road corridors are not just used for movement and accessibility, but they also accommodate utilities. Therefore, planning must be flexible to also allow for the integration of other infrastructure.

3.7 APPROACH TO ROAD PLANNING

The proposed approach to road planning in Qatar builds on contemporary examples seen elsewhere in the world. It is intended to ensure that planning considers the guiding principles in a systematic, integrated, and holistic way.

The three **levels of planning** guide the sequential development of road planning and design. This begins with understanding the desired outcomes from the network, the role of a given corridor in realizing those outcomes, and the urban context of the various links that make up corridor.

The associated **planning framework** defines what factors need to be considered in the planning process. This includes the functional classification, the requirements and prioritization of various modes, and the types of precincts, zones and neighborhoods that constitute the city.

Consideration to the build environment should be given while updating existing roads and related infrastructure. Optimization of the existing ROW should be followed with departures from existing standards with approval from overseeing organization before requesting for additional land.

3.7.1 CONSIDERATION OF EXISTING CONDITION

Before planning transportation corridors, planners need to study and identify constrains, risks and opportunities of the existing conditions. The following information as minimum should be studied:

- Available ROW
- Existing road layout and junctions
- Existing utilities layout
- Current traffic
- Drainage pattern
- Protected areas (environmental sensitive areas, cultural sites)
- Access to existing sites
- Topography
- Etc.

3.7.2 LEVELS OF PLANNING

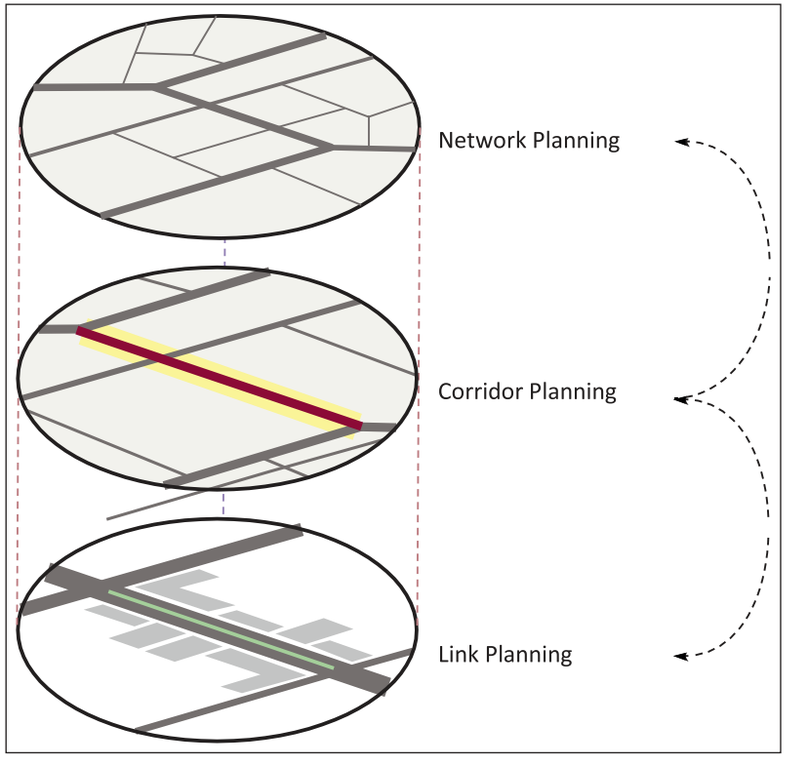
The guiding principles are to be implemented across three levels of road planning. This includes in the configuration of the road network, in planning specific road corridors, and in designing individual road links.

The road planning process is necessarily iterative. Assumptions made at a network level need to be tested at a corridor level. For instance, adjusting public transport networks and identified freight routes mapped on the same corridor to improve the performance of both. Similarly, the functional layout designed at a corridor level needs to be tested at a link level. For example, right of way constraints at a local level may have the potential to create bottle necks or reduce corridor capacity. This and similar constraints at a local level may also require the revision and retesting of assumptions at a network level, with capacity adjustments on other nearby corridors, for instance.

This process and the iterative relationship between the various levels is illustrated in Figure 3.2 and explained further below.

This guide primarily focusses at the network and corridor level, enabling a road planner to gain an understanding of how to appropriately structure a road network, and providing guidance on how to establish an approximate right-of way width. The QHDM is focused more at the link level, providing guidance around detailed design for a road.

Figure 3.2 - Levels of Load Planning



Network Planning

Network-level road planning involves the identification of demand patterns and key movements of people and goods across regions or the state.

Network planning considers how the road network can best be configured to support the long-term aspirations for and economic growth of the State. At the network planning stage, the functional classification is also important as it will dictate the required ROW and the proper connecting hierarchy (E.g. Expressway to Arterial, to Collector to Local Street) which is necessary for corridor reservation.

The final network plan defines the connections and capacity for travel between key centers such as downtown Doha, economic zones, Hamad International Airport and Hamad Port. It provides a long- term vision for how the network will implement long-term government policy.

Key parameters that should be considered at a network level:

- Forecast population: anticipated population growth, density and distribution;
- Long-term land use plans: identification of demand generators, transport gateways and other places of significance; and
- Trip volumes between key locations by trip type.

Corridor Planning

Corridor-level road planning determines how the functional layout of a road corridor and the relative levels of service can deliver on the objectives and role determined by the network. This includes making initial determinations of the number of lanes required and relative priority of different types of trips or modes being served. It will also require consideration of the different parts of the city through which the corridor passes. The final corridor plan provides a concept for the road from its start to its end. At this stage utilities requirements shall also be established by showing only the reserved ROW for each utility.

Key parameters that should be considered at a corridor level include:

- Forecast demand, anticipated traffic volumes along the corridor and the desired Level of Service (LOS);
- Desired performance and the level of service being afforded to each road user group;
- Trip types and the origins and destinations of users of the corridor;
- Modal priority and how road space within the corridor is most equitably or efficiently allocated;
- Destinations served such as the key centers that the corridor connects; and
- Land use context and the areas of the city the corridor passes through.

Link Planning

Link-level road planning determines how the design of a single segment of a corridor should respond to its immediate context and functional requirements. Successful link-level planning facilitates desired mobility outcomes in a way that is complimentary to its local place. This includes ensuring that the design of physical infrastructure and the associated road environment appropriately ensures the safety of all road users. It also includes providing a level of amenity that supports the realization of desired urban outcomes such as outdoor dining and retail or encouraging walking.

Link-level planning should test whether there are any physical constraints on the realization of corridor objectives. This may be constraints on the right of way restricting the number of traffic lanes or conflicts between the urban environment and the type of trips to be accommodated (freight vehicles impacting residential areas, for example).

Key parameters that should be considered at a link level include:

- Immediate land use context interfacing with the road corridor;
- Broader land use context and its influence on local trips and pedestrian and cyclists activity;
- Physical constraints on right of way widths and influence it may have on road function; and
- Connecting roads and streets and context sensitive planning.

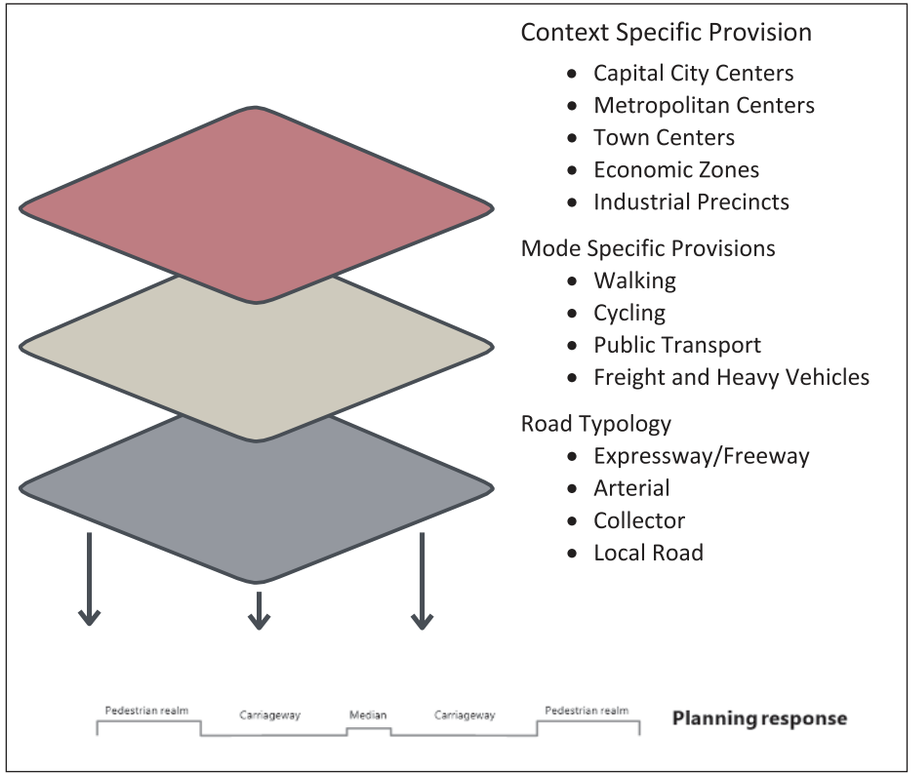
3.7.3 PLANNING FRAMEWORK

The road planning framework defines what factors need to be considered in planning roads and how road design should most appropriately respond. The framework proposed in this guide seeks to integrate consideration of road network hierarchy, the needs of each road user group, and the response to the land use context.

The three-layered framework maintains the existing functional road hierarchy and associated design and performance standards but provides additional guidance on how these factors should be adjusted in response to the needs of different modes and different places across the State. This is shown in Figure 3.3 and 3.4.

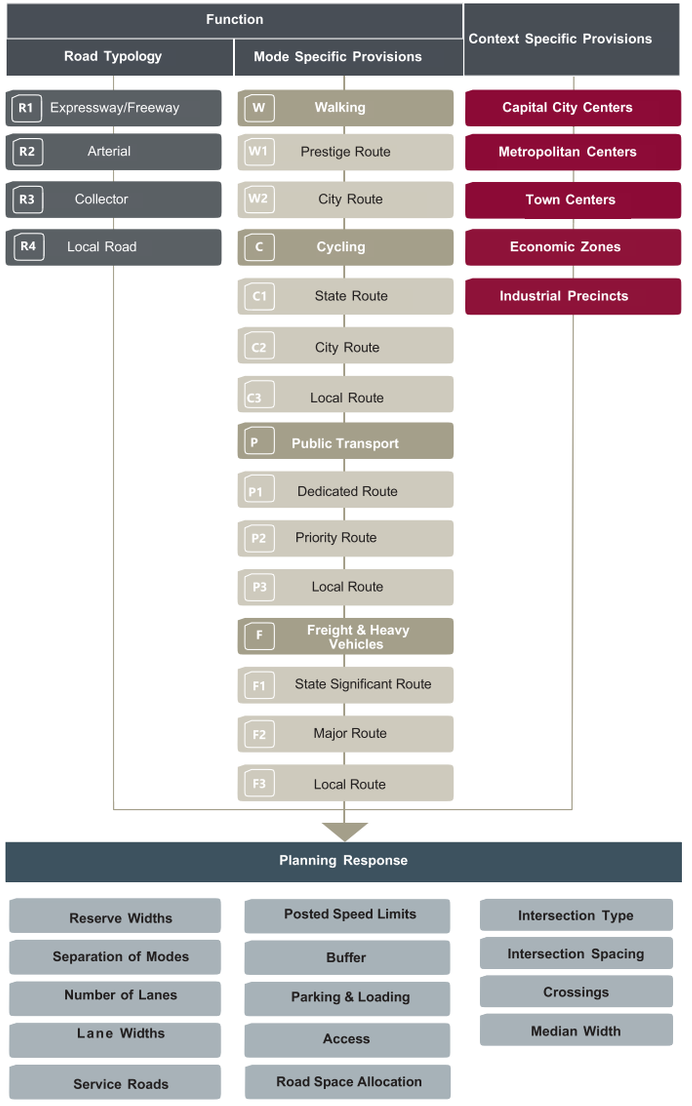
The intention is that this approach more effectively embeds considerations of the guiding principles across the three levels of network planning. In doing so it ensures issues such as safety of pedestrians and cyclists and the efficiency of public transport or freight networks are pro-actively accommodated through network and corridor design rather than in reaction to specific issues or declining levels of service.

Figure 3.3 - Overview of the Planning Framework

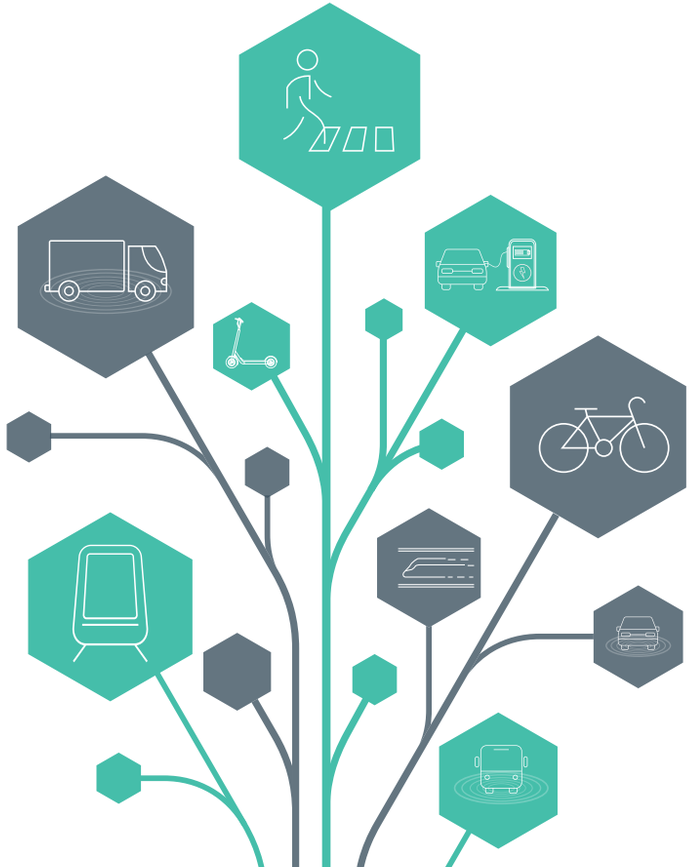


SECTION 3

Figure 3.4 - Components of The Planning Framework



SECTION 3



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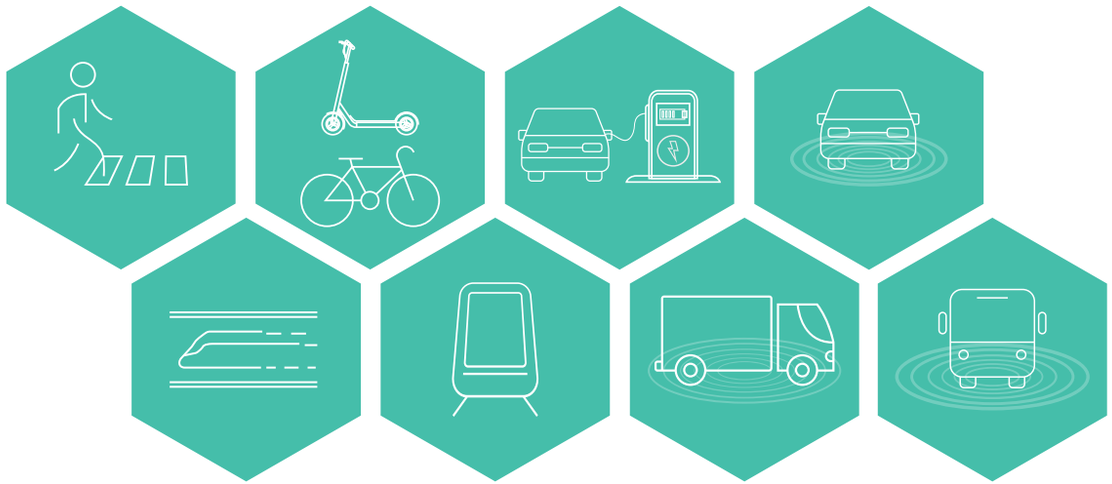
SECTION - 04

NETWORK PLANNING GUIDELINES



4 NETWORK PLANNING GUIDELINES

4.1 GENERAL SYSTEM HIERARCHY

The road system in Qatar is based on an interconnected grid of roads and streets that seeks to distribute modes and demand in a way that mitigates congestion, provides system resilience, and ensures the safety of all road users.

The urban hierarchy of roads is based on four broad classifications:

- **Expressways** that carry long- distance trips entering or travelling across urban areas,
- **Arterials** that connect to major centers of activity and accommodate through traffic
- **Collectors** that provide vehicle access from local neighborhoods to the arterial network as well as supporting pedestrian and cycle trips, and
- **Local Roads** that provide access to homes and businesses.

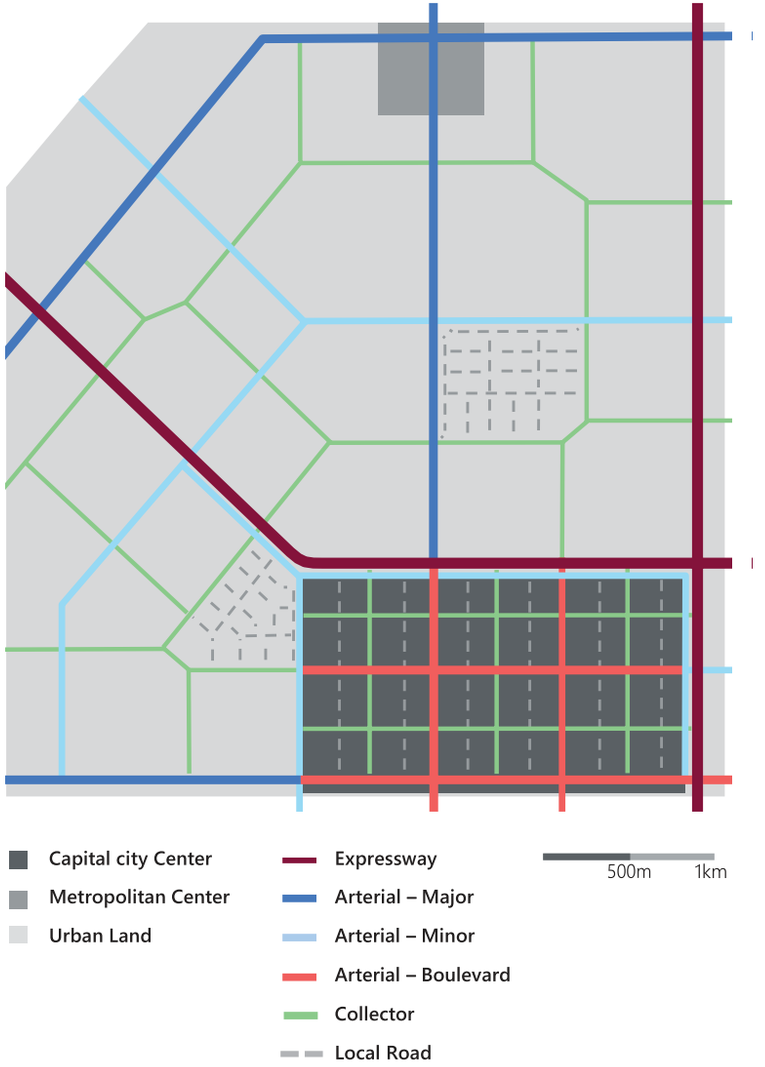
An equivalent hierarchy exists for rural areas, noting that expressways in rural areas are referred to as freeways with higher speeds and wider ROWs.

This section describes the principles and standards that inform the planning of road networks and how the classification of roads should be applied.

Figure 4.1 provides an example of how this hierarchy fits together to balance access to key precincts and neighborhoods across the urban area. It demonstrates how the hierarchy evolves relative to its context with a higher density of higher order roads (arterials and collectors) in major centers, reflecting the higher volume of trips that these areas generate. The figure also illustrates how each layer of the hierarchy forms its own integrated grid, avoiding capacity 'bottlenecks' and ensuring connectivity across the city for vehicles, pedestrians, and cyclists.

Network planning principles and standard parameters for each classification are explained in detail over the next few pages. For ease of use within the proposed framework, these roads have a unique identifier associated with them (R1-4).

Figure 4.1 - Typical System Hierarchy



R1 **EXPRESSWAYS**

4.2 NETWORK PLANNING PRINCIPLES

General

Expressways are the foundation of Qatar's road network and the functioning of its economy. They link the regions to Doha, the suburbs to the central city, and major industrial and economic zones to transport gateways.

Expressways are exclusively focused on movement and are designed to enable free flowing traffic to move at high speeds over long distances. Radial expressways cater for trips toward the central city and orbital expressways carry trips across the city.

Layout

Together, radial and orbital expressways should create an integrated and continuous network that serves major centers (Capital City and Metropolitan), transport gateways and other key destinations across Doha and the State. Unlike other parts of the hierarchy which form a more regular grid to distribute traffic, expressway grids are intended to provide capacity between major destinations and along major desire routes. Intervals between expressways will therefore be set based on spatial distribution of activity and in a way that avoids transecting or impeding the accessibility of neighborhoods. TMPQ provides an extensive analysis and indicators to assess alternative transport plans including Expressway and strategic corridors.

Where possible expressway grids should also be continuous to avoid the creation of 'bottlenecks' where large volumes of traffic hit slower-moving arterial networks.

Land use

Direct access to expressways, including the use of service roads, is strictly prohibited, unless for accessing petrol stations or rest areas. There is a general desire for commercial or industrial land uses to be located alongside expressways or, where this is not feasible, for residential land uses to be sufficiently set back to allow for proper noise attenuation.

Expressways should not be located within or through Capital City Centers, Metropolitan Centers, or Town Centers.

Figure 4.2 - Typical Layout Expressways

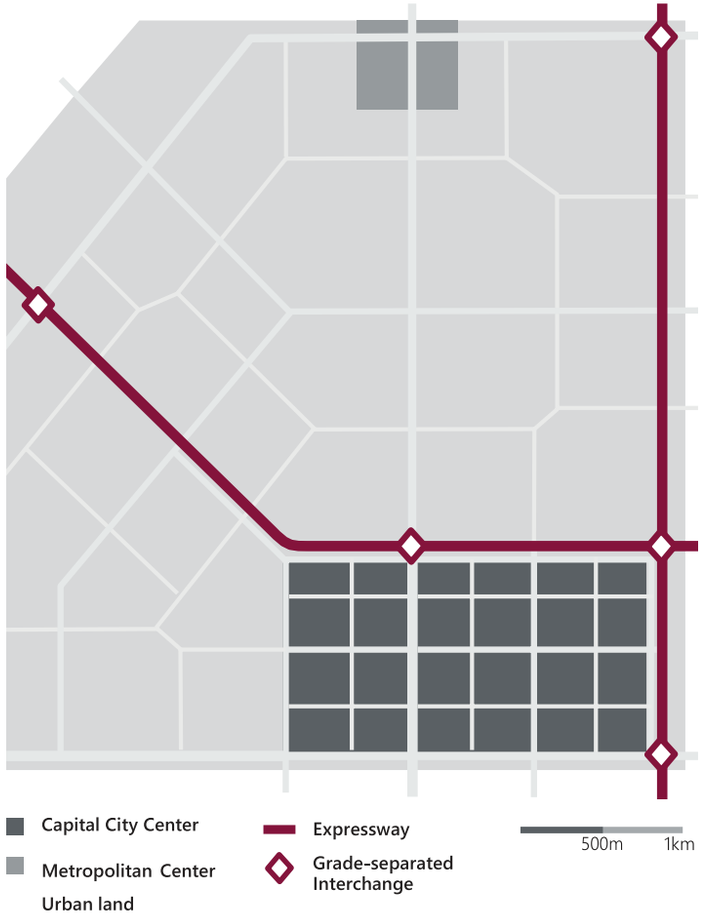


Diagram illustrates how expressways form a radial network that provides access from the edge of the urban area to the capital city center. The expressways are to the edge of the center to avoid inhibiting accessibility. Grade separated interchanges are provided on major arterial roads.

R2 ARTERIALS

General

Arterial roads are intended to support medium distance trips and connect precincts and neighborhoods to the expressway network. They should form an interconnected grid that provides for a high level of movement across the urban area and balanced distribution of vehicle trips to maintain a high LOS for all users.

Layout

Arterial roads are generally spaced at intervals of one to 1.5 kilometers, similar to the traditional ring roads of Doha. The designation between minor and major depend on projected traffic volumes, or the road's priority to public transport or freight vehicles.

Land use

While arterial roads are primarily focused on mobility, in Capital City and Metropolitan centers arterial roads are to form boulevards that, while maintaining capacity, offer greater amenity and priority for pedestrians and cyclists.

In these areas the density of arterial roads increases (intervals between arterial roads decreases) to more effectively distribute high volumes of traffic. A more regular grid of arterial roads also allows the scale of those roads within centers to be reduced, with a preference for more four-lane arterials over a smaller number of six- or eight-lane arterials.

Outside of centers direct access to arterial roads is generally to be avoided or provided via a service road.

Figure 4.3 - Typical Layout Expressways

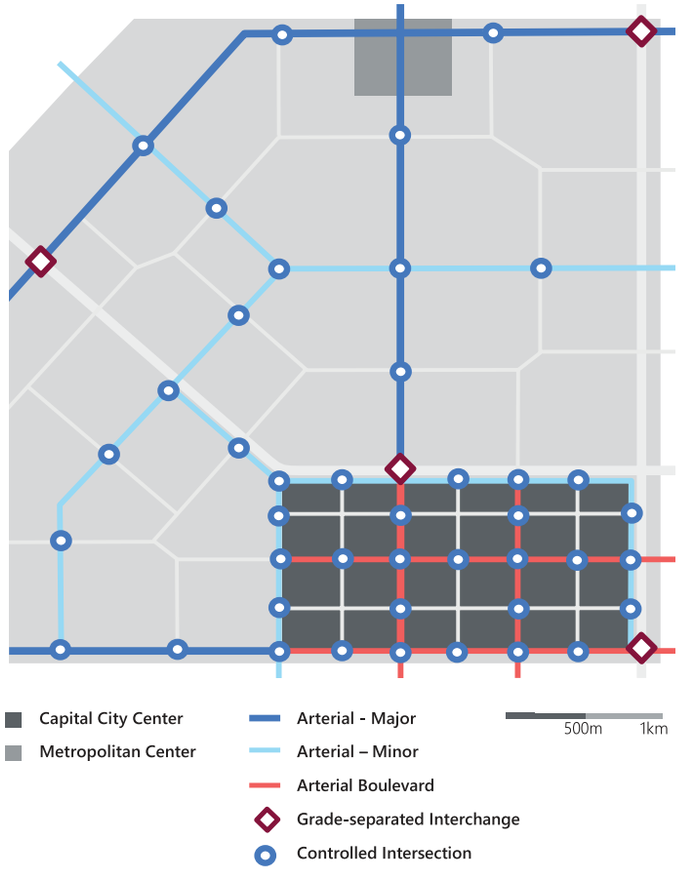


Diagram illustrates how major arterials provide the main avenues of access to the capital city center. The grid of arterial roads becomes denser in and around the capital city center and arterials within the center are designed as boulevards. Control intersections are provided at all collector roads

R3 COLLECTORS

General

Collector roads balance mobility and access, connecting precincts and neighborhoods to the arterial network. Like arterials, collector roads are intended to form an integrated grid to provide for cross- neighborhood trips, however this grid should be less direct, passively reducing vehicle speeds and discouraging through or longer distance trips. The grid should also be designed to facilitate local-level public transport networks and therefore provide for connectivity between town and other civic center.

Layout

The grid of collector roads should sit between arterial roads at typical intervals of 400 to 800 meter, or as required to accommodate forecast trip volumes.

In addition to vehicle trips, collectors form the backbone of pedestrian and cycle networks. Collectors should therefore facilitate access across the arterial network and cater for trips between neighborhoods.

Intersections should incorporate high quality safe pedestrian and cycle crossing points.

Land use

Civic uses such as schools, town center, and other neighborhood activity areas are generally anchored to collectors.

Figure 4.4 - Typical Layout of Collection Roads

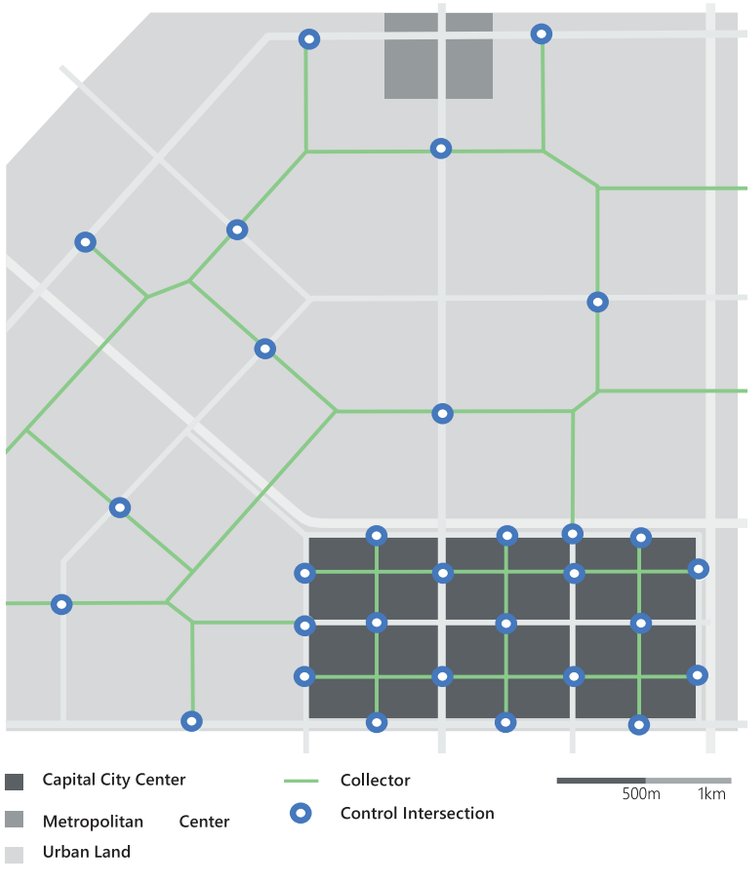


Diagram illustrates how collector roads form an indirect grid that provides for connectivity between neighborhoods. While the grid is generally spaced at between 400 and 800 meters, there is closer spacing of arterials and collectors within the capital city center. Control intersections are provided at all arterials

R4 LOCAL ROADS

General

Local roads provide for access, catering for the first and last mile of journeys rather than through trips. Local roads are generally low speed environments that cater for vehicles, pedestrians, and cyclists.

Local roads should still generally form a basic grid that can cater for pedestrian and cyclist movements away from collector and arterial roads, but this grid should be largely indirect or adopt other measures to passively reduce vehicular speeds and discourage through trips.

Freight and heavy vehicles are discouraged from operating on local roads and therefore lane widths and intersection geometries can be kept to a minimum.

Layout

The dimension of local road grids will be informed by both the relevant building typologies (detached housing will require smaller blocks than large commercial towers for example) but should generally be no more than 250 meters in length. Depending on projected traffic volumes, some parts of the grid may be closed to through- traffic or dedicated to pedestrian and cycle movement only.

Local roads should not intersect with arterial roads or any other higher order roads unless via service roads or within Capital City or Metropolitan Center where posted speeds on arterials are reduced.

Land use

Major activity generators such as shopping malls, schools, or hospitals should generally not be located on or accessed from local roads. Further, petrol stations should not be located adjacent to local roads.

Figure 4.5 - Typical Layout of Local Roads

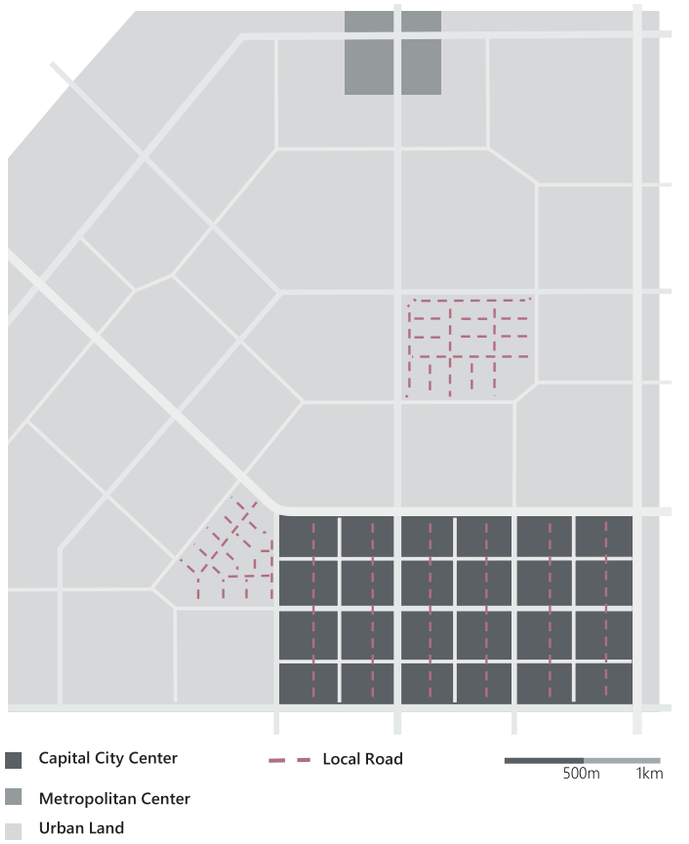


Diagram illustrates how local roads fill the grid between collectors. Homes and businesses within neighborhoods are accessed from local roads. When fronting arterials, local roads form service roads to avoid conflicts between access and fast-moving traffic. The grid of local roads is at wider intervals in the Capital City Center where density is much higher.

4.3 NETWORK PLANNING STANDARDS

The QHDM identifies additional typologies of roads within each of the four broad categories discussed above. Decisions on which typology or sub-category are appropriate will be informed by forecast traffic volumes. Table 4.1 provides an indication of the basic planning parameters for each typology of road.

Table 4.1 - Baseline Network Planning Standards

Road Classification		AADT Range (VPD)	Roadway Type	Posted Speed (KPH)	Minimum Intersection Spacing (M)	Mobility vs Accessibility
Urban Area						
Expressway		50,000-80,000	8-10 lane divided	80/100	1,500	Mobility No access
Arterial	**Major**	30,000-60,000	4-8 lane divided	50/80	600	Mobility Limited access
	Minor	20,000-50,000	4-8 lane divided	50/80	150	Mobility Accessibility secondary
	Boulevard	30,000-60,000	4-8 lane divided	50/80	300	Accessibility Mobility secondary
Collector	**Distributor**	5,000-50,000	One-directional	50/80	N/A	Mobility Accessibility secondary
	Major	10,000-50,000	4-6 lane divided	50	100	Mobility/ Accessibility
	Minor	5,000-20,000	2-lane undivided or 4-lane divided	50	50	Accessibility Mobility secondary
Road Classification		**AADT Range (VPD)**	**Roadway Type**	**Posted Speed (KPH)**	**Minimum Intersection Spacing (M)**	**Mobility vs Accessibility**
Service Road		<5,000	1-2 lane one directional	50	50	Accessibility Mobility secondary
Local Road		<5,000	2-lane undivided	30-50	As required	Accessibility Limited mobility

Road Classification	AADT Range (VPD)	Roadway Type	Posted Speed (KPH)	Minimum Intersection Spacing (M)	Mobility vs Accessibility
Rural Area					
Freeway	>8,000	6 lane divided or more	100/120	3,000	Mobility No access
Arterial	2,000-8,000	4 or 6 lane divided	80/100	1,000	Mobility Limited access
Collector	1,000-2,000	4-lane divided	50/80	500	Mobility/ Accessibility
Local Road	<1,000	2-lane undivided	50	As required	Accessibility Mobility secondary

In addition to the baseline network planning standards, there are restrictions on how road typologies are integrated within the network. Table 4.2 and Table 4.3 identify permitted and restricted connections across the road hierarchy. The restrictions are intended to reduce points of conflict between access and movement.

SECTION 4

Table 4.2 - Permitted Network Connections – Urban Area

	Expressway	Arterial - Major	Arterial - Minor	Arterial - Boulevard	Collector - Distributor	Collector - Major	Collector - Minor	Service Road	Local Road
Expressway	/	/	O	O	/	X	X	X	X
Arterial - Major	/	/	/	/	/	/	O	/	X
Arterial - Minor	O	/	/	/	O	/	/	/	O
Arterial - Boulevard	O	/	/	/	O	/	/	/	/
Collector – Distributor	/	/	O	O	/	O	O	X	X
Collector - Major	X	/	/	/	O	/	/	/	/
Collector - Minor	X	O	/	/	O	/	/	/	/
Service Road	X	/	/	/	X	/	/	/	O
Local Road	X	X	O	/	X	/	/	O	/

Table 4.3 - Permitted Network Connections – Rural Area

	Freeway	Arterial	Collector	Local Road
Freeway	/	/	X	X
Arterial	/	/	/	O
Collector	X	/	/	/
Local Road	X	O	/	/

Key:
/ Recommended
O Permitted, but not recommended
X Not recommended

Further, Table 4.4 and Table 4.5 identify permitted intersection types for different road typologies. These should be used when trying to understand space requirements for intersections.

Table 4.4 - Permitted Intersection Types – Urban Area

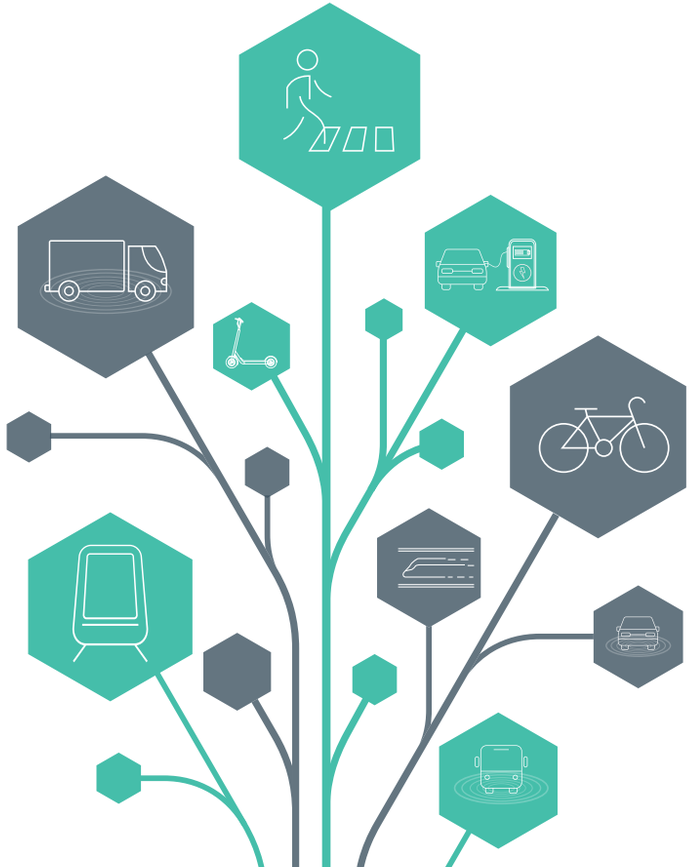
Road Typology	Intersection Type
Expressway	Grade-Separated Interchange
Arterial - Major	Signalized, or Priority Right-In Right-Out
Arterial - Minor	Signalized, or Priority Right-In Right-Out
Arterial – Boulevard	Signalized, Roundabout, or Priority Right-In Right-Out
Collector – Distributor	Grade-Separated and Right-In Right-Out
Collector - Major	Signalized, Roundabout, Priority Right-In Right-Out, or Pedestrian Crossing
Collector - Minor	Signalized, Roundabout, Priority Right-In Right-Out, or Pedestrian Crossing
Service Road	Signalized, Roundabout, or Priority Right-In Right-Out
Local Road	Signalized, Roundabout, Priority Right-In Right-Out, or Pedestrian Crossing

Source: QHDM 2020

Table 4.5 - Permitted Intersection Types – Rural Area

Road Typology	Intersection Type
Freeway	Grade-Separated Interchange
Arterial	Grade-Separated Interchange, Roundabout, or Priority Right-In Right-Out
Collector	Roundabout, Priority Right-In Right-Out, or Pedestrian Crossing
Local Road	Roundabout, Priority Right-In Right-Out, or Pedestrian Crossing

Source: QHDM 2020



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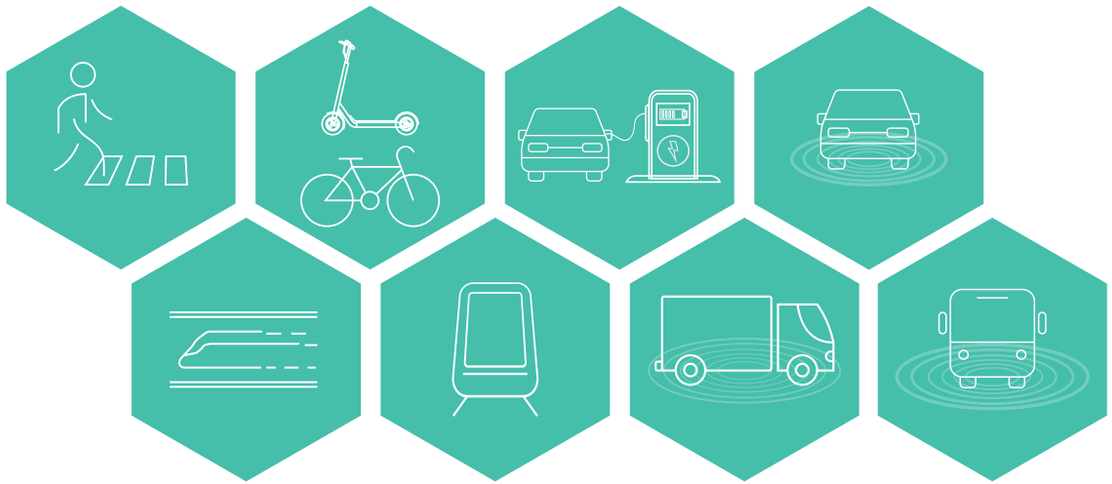
SECTION - 05

CORRIDOR AND LINK PLANNING GUIDELINES



5 CORRIDOR AND LINK PLANNING GUIDELINES

5.1 HOW TO APPLY THE PRINCIPLES AND STANDARDS

This section provides guidance for the planning of road corridors across Qatar. It includes **planning principles** and related **planning standards** that must be applied during the corridor and link level planning process.

Planning principles describe how a corridor/link should be carefully planned to cater for projected demand, accommodate and prioritize different modes, and how it should respond to its relevant urban or rural context.

Planning standards contained in standards tables (denoted describe typical operational requirements, physical dimensions and other spatial directions for a corridor/link based on its level within the hierarchy, modal provision, and the local context.

These principles and standards must be applied in the planning of new roads and the upgrade of existing roads as per QHDM standards.

As identified in Section 3 of this guide, a three staged process should be followed to carefully identify the principles and standards that are relevant to the planning of an individual corridor/link.

The functional classification is the starting point to determining the **baseline planning standards** for the roadway.

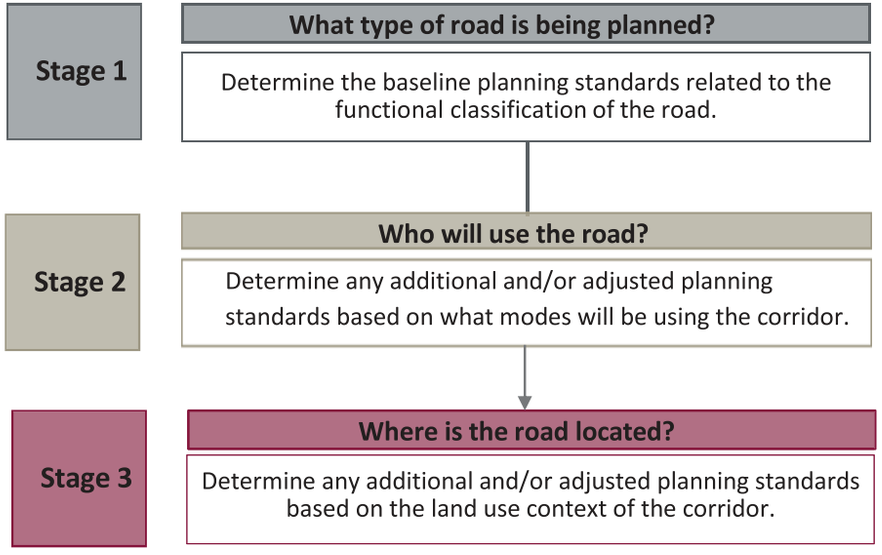
Mode specific provisions then determine additional standards in relation to frontage, and in some cases adjust the baseline planning standards for the roadway.

Lastly, contextual provisions outline how the identified cross-section should be manipulated further to best respond to the land use context of the road corridor.

During the planning process, planners should consider the buffer (or set back) requirements between the edge of the ROW and surrounding buildings for expressways and freeways by coordinating with the land use planners.

Figure 5.1 provides an example decision tree for a new road corridor in an urban area.

Figure 5.1 - Corridor and Link Planning Process

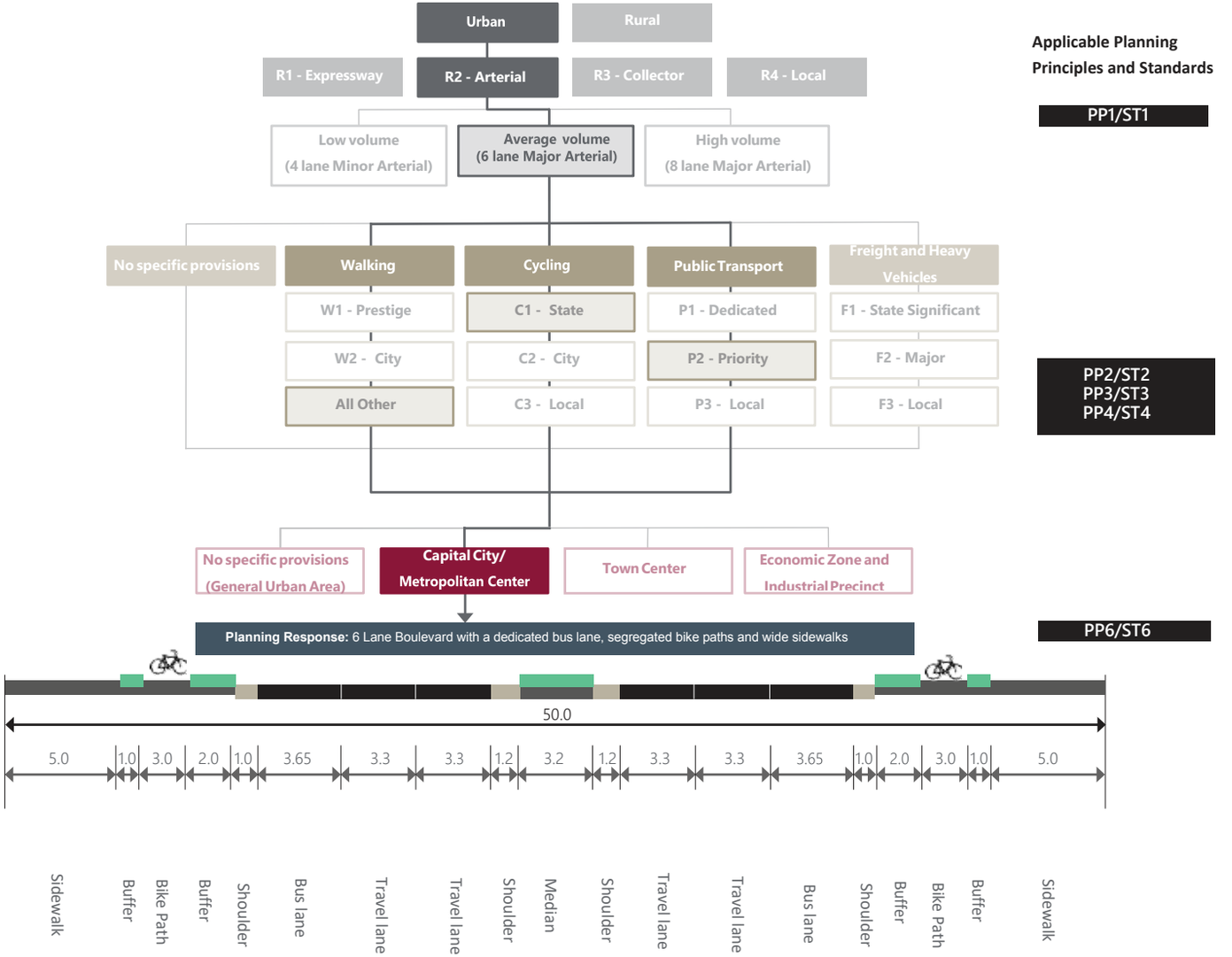


SECTION 5

Stage 1:
Road Typology Definition

Stage 2:
Mode Specific Provisions

Stage 3:
Context Specific Provisions



Applicable Planning Principles and Standards

PP1/ST1

PP2/ST2
PP3/ST3
PP4/ST4

PP6/ST6

SECTION 5

5.2 ROAD TYPOLOGY DEFINITIONS

Table 5.1 and Table 5.2 provide the baseline planning principles and standards that must be applied for a specific road classification

Table 5.1 - PP1 Baseline Corridor and Link Planning Principles

Road Classification	Urban Area	Rural Area
All	**PP1.1** Where existing roads are being reconstructed, lane width may be reduced to 3.30m for roads with a design speed of 80kph or less **PP1.2** In areas where traffic volumes are low, carriageways may be narrowed over a short length to a single lane as a traffic-calming feature **PP1.3** The ROW should include the land required to develop ingress and egress for road facilities such as petrol stations, weigh station, rest areas, etc. The spacing between these facilities should be considered and agreed with the relevant authorities.	
R1 Expressway/ Freeway	**PP1.4** Noise attenuation measures should be adopted where an expressway/freeway is located in proximity to residential areas. Non-motorized transport infrastructure should be located on the outside of any noise attenuation structures	**PP1.5** Noise attenuation measures should be adopted where a freeway is located in proximity to residential areas
R2 Arterial	**PP1.6** Median widths must consider the need for left turn lanes at control intersections. For a single left turn lane a minimum width of 5.3m is required **PP1.7** Where no left turn lanes are required, median widths may be rationalized to fit the available right of way and minimize land use impacts **PP1.8** Parallel parking lanes should only be considered on roads with posted speed limits of 50kph or less	**PP1.9** Median widths must consider the need for left turn lanes at control intersections. For a single left turn lane a minimum width of 5.3m is required **PP1.10** Where an arterial road cuts through a rural town speed limits should be reduced to maximize safety
R3 Collector	**PP1.11** Median widths must consider the need for left turn lanes at control intersections. For a single left turn lane a minimum width of 5.3m is required **PP1.12** Parallel parking lanes should only be considered on roads with posted speed limits of 50kph or less	**PP1.13** Median widths must consider the need for left turn lanes at control intersections. For a single left turn lane a minimum width of 5.3m is required **PP1.14** Parallel parking lanes should only be considered on roads with posted speed limits of 50kph or less
R4 Local Road	**PP1.15** Parallel parking lanes should only be considered on roads with posted speed limits of 50kph or less	**PP1.16** Parallel parking lanes should only be considered on roads with posted speed limits of 50kph or less

Table 5.2 - ST1 Baseline Corridor and Link Planning Standards

Road Classification		Roadway Typology	Posted Speed (KPH)	Travel Lane Width (M)	Minimum Median Width (M)	Shoulder Widths (M) [L/R]	On-Street Parking Provision	Width of Parking Lane (M)
Urban Area								
Expressway		8-10 lane divided	80/100	3.65	3.0	1.20/3.00	Prohibited	N/A
Arterial	**Major**	4-8 lane divided	50/80	3.65	12.2	1.20/3.00	Prohibited	N/A
	Minor	4-8 lane divided	50/80	3.65	6.0	0.35/0.35	Restricted	2.5
	Boulevard	4-8 lane divided	50/80	3.65	6.0	0.35/0.35	Restricted	2.5

SECTION 5

Table 5.2 - ST1 Baseline Corridor and Link Planning Standards

Road Classification		Roadway Typology	Posted Speed (KPH)	Travel Lane Width (M)	Minimum Median Width (M)	Shoulder Widths (M) [L/R]	On-Street Parking Provision	Width of Parking Lane (M)
Collector	Distributor	One-directional	50/80	3.65	QHDM*	0.35/0.35	Prohibited	N/A
	Major	4-6 lane divided	50	3.65	6.0	0.35/0.35	Restricted	2.5
	Minor	2-lane undivided or 4-lane divided	50	3.65	6.0	N/A	Restricted	2.5
Service Road		1-2 lane one directional	50	3.65	N/A	N/A	Permitted	2.5
Local Road		2-lane undivided	30-50	3.65	N/A	N/A	Permitted	2.5
Rural Area								
Freeway		6+ lane divided	100/120	3.65	10.0	3.00/3.00	Prohibited	N/A
Arterial		4 or 6 lane divided	80/100	3.65	10.0	3.00/3.00	Prohibited	N/A
Collector		4-lane divided	50/80	3.65	10.0	3.00/3.00	Permitted	2.5
Local Road		2-lane undivided	50	3.65	N/A	N/A	Permitted	2.5

*Note: *refer to QHDM guidance*

5.3 MODE SPECIFIC PROVISIONS

5.3.1 WALKING

The QNDF highlights a number of worrying health trends among Qatar's population, including rising rates of diabetes linked to the fact that over half the population does not participate in regular physical activity.

The QNDF highlights the 'critical role' women play in promoting healthy lifestyles through their influence on children's health and wellbeing. It identifies walking as the most common physical activity or sport that women participate in and access constraints being one of the main factors that inhibit greater participation. Road corridors are the primary public space that facilitates walking and therefore the provision of safe and climatically sensitive pedestrian infrastructure within these corridors can have a positive influence on health and wellbeing as well as the State's livability which government policy seeks to enhance.

Beyond physical activity, walking also has an important economic role to play. Environments conducive to walking within economic centers can enhance business-to-business transactions, facilitate knowledge transfer and collaboration, and, consequently, contribute to increased productivity. Further, attractive walking environments encourage visitors to expand the areas of a city they explore, increasing the economic benefits of tourism as well as broadening Qatar's appeal.

Such considerations have not historically been factored into road design. In future, all road corridors within urban areas should, at a minimum, have a sidewalk of 1.8 meters (to allow 2 wheelchairs to pass) on each side of the carriageway, unless there is a justifiable reason not to. This minimum provision is not only intended to provide facilities for walking but to also

ensure that those facilities are universally accessible and suitable for the mobility impaired.

Further, sidewalks must be climatically appropriate and incorporate sufficient shading elements to maximize the hours across the day and days across the year in which they can be used.

W1 PRESTIGE -ROUTE

Where a walking route is of significance, greater priority and LOS should be provided to pedestrians. These 'Prestige Routes' include the Corniche on Doha Bay or other routes that are integral to the character of Qatar. These provide connections to nationally important institutions or major tourist attractions or cater for particularly high numbers of pedestrians.

Prestige Routes must provide wider footpaths, higher levels of amenity, and generally afford pedestrians priority over other modes.

Prestige Routes would typically be located along arterial or collector roads.

W2 CITY -ROUTE

City Routes serve a high-quality function, capable of accommodating large pedestrian volumes. These would typically be found in major business districts (Capital City Center or Metropolitan Centers), tourist destinations, and connecting to metro stations and major public transport interchanges.

City Routes would typically be located parallel to arterial or collector roads in urban areas. City Routes should maximize the effective width and capacity by minimizing obstructions.

Table 5.3 - Integration of Walking Routes, Infrastructure and Road Classification

Road Classification	W1 Prestige Route	W2 City Route
Expressway/ Freeway	**X**	**X**
Arterial	**/** Segregated sidewalks	**/** Segregated sidewalks
Collector	**/** Segregated sidewalks	**/** Segregated sidewalks
Local Road	**O** Sidewalks on both sides	**O** Sidewalks on both sides

/ *Recommended* **O** *Permitted, but not recommended* **X** *Not recommended*

SECTION 5

Table 5.3 - PP2 Corridor and Link Planning Principles - Walking

General	**PP2.1** In pedestrian heavy environments ROW widths should be kept to a minimum to ensure suitable crossing of roads **PP2.2** Sidewalks should be designed in a way that promotes universal accessibility with ramps or dips with tactile pavers provided at all intersections and crossings and steps within the pedestrian environment avoided **PP2.3** Sidewalks should be designed in a way that is climatically sensitive with a sufficient level of shade provision to maximize the hours of the day and days of the year in which they can be used **PP2.4** Where a sidewalk crosses a side road, the intersection should be designed to passively slow vehicle turn-in speeds through measures such as tighter corner radii to ensure pedestrian safety **PP2.5** Where a development block is over 100m in length and/or width, it is recommended that a pedestrian route is provided through the site to create permeable developments. Consideration should also be given if the pedestrian route should be allocated as ROW. **PP2.6** Where pedestrian activity is particularly high and the LOS is being compromised, a pedestrian only corridor should be created, and vehicle movements should be diverted to another route (see Appendix A for example pedestrian only corridors) **PP2.7** Locate street furniture, such as light poles, signposts, and refuse bins outside of the designated pedestrian sidewalk **PP2.8** For the safety of the pedestrians and cyclists provide minimum 1m buffer between sidewalk and bike path.
W1 Prestige Routes	**PP2.9** Where a prestige route follows an arterial road, that arterial road should be designed as a boulevard **PP2.10** Where a prestige route follows a local road, pedestrians should be given priority with vehicular use restricted to access only, speeds reduced and through trips prohibited **PP2.11** Where a prestige route crosses a local or collector road, the street or road surface should be raised to pedestrian path height and the crossing clearly identified using a different pavement color or treatment to increase driver awareness
W2 City Routes	**PP2.12** Where a City Route crosses a local or collector road, the street or road surface should be raised to pedestrian path height and the crossing clearly identified using a different pavement color or treatment to increase driver awareness

Table 5.4 - ST2 Corridor and Link Planning Standards - Walking

Walking Route	Road Classification	Sidewalk Width (M)		Buffer Width to Roadway (M)	
		Preferred Min	Absolute Min	Preferred Min	Absolute Min
General	**Expressway/ Freeway**	2.0	2.0	4.0	3.0
	Arterial	2.0	2.0	1.2	0.5
	Collector	2.0	2.0	1.2	0.5
	Local Road	2.0	2.0	1.2	0.5
W1 Prestige Route	**Expressway/ Freeway**	Not recommended			
	Arterial	5.0	3.0	2.0	1.2
	Collector	5.0	3.0	2.0	1.2
	Local Road	5.0	3.0	1.2	0.5
W2 City Route	**Expressway/ Freeway**	Not recommended			
	Arterial	4.0	3.0	2.0	1.2
	Collector	4.0	3.0	2.0	1.2
	Local Road	4.0	3.0	1.2	0.5

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5.3.2 CYCLING

In addition to the promotion of walking, the QNDF seeks to promote an urban environment that is conducive to cycling. The QNDF suggests that increasing the attractiveness and viability of cycling will be an important factor in reducing road congestion – particularly as it stems from travel demand for short, local trips – improving societal health and well-being, and minimizing the environmental footprint of travel.

Providing infrastructure that connects key centers and improving the safety of cycling on the State's roads is critical to realizing this aspiration, and directly responds to the following policies from the QNDF: BE6: Livable Neighborhoods, BE7: Attractive and Recognizable Capital City Precinct, BE9: Design for Density, and M5: Facilities for Pedestrians, Cyclists and those with special needs. The QNDF recognizes that planning and design of complete streets which incorporate pedestrian and cycling facilities is fundamental to improving accessibility options and quality of life.

C1 STATE ROUTE

State Routes have an important role to play in reducing private vehicle use across Qatar and improving health and well-being of residents. The State Network includes a series of fast track bike paths that provide dedicated space for cyclists.

They are separated from the roadway by a buffer. This network is typically found adjacent to high- volume or high-speed roadways where accommodating cyclists in the roadway is unsafe. This State Route provides connectivity between general urban areas and major centers (Capital City and Metropolitan).

C2 CITY ROUTE

City Routes are intended to provide for safe movement within or around high density, mixed use precincts in urban areas. Levels of service and infrastructure provision may be tailored to expected demand and the relevant road environment. Generally, the City Route should follow arterial and collector roads and therefore infrastructure will be separated from moving traffic but may be shared with pedestrians where appropriate.

C3 LOCAL ROUTE

Local routes are intended to encourage cycling within residential areas. They provide connections to the city and local networks. Local routes are generally accommodated in vehicle lanes on local roads where traffic volumes are low and travelling speeds are below 50 kph.

Table 5.5 - Integration of Cycling Routes, Infrastructure and Road Classification

Road Classification	C1 State Route	C2 City Route	C3 Local Route
Expressway/ Freeway	/ Segregated bike path	O Segregated bike path	X
Arterial	/ Segregated bike path (Grade separation for cyclist should be considered)	/ Segregated bike path	X
Collector	O Segregated bike path	/ Segregated bike path	/ Partial integration or shared path
Local Road	X	X	/ Full/partial integration or shared path

/ - Recommended O Permitted, but not recommended X Not recommended

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Table 5.6 - Definition of Cycling Infrastructure

Full Integration	Motor vehicles and cyclists share the same traffic lane.
Partial Integration	The curbside lane, shared by both motor vehicles and cyclists, is widened to allow vehicles to overtake cyclists without changing lanes.
Shared Path	A separate path away from the roadway is shared by cyclists and pedestrians.
Bike Path	A separate path away from the roadway is used exclusively by cyclists.
Segregated Path	Part of segregated path is used by cyclists, the rest by pedestrians. Segregation may be achieved by a white line or by a physical feature such as a shoulder, a fence, or a curbed level difference.

Table 5.7 - PP3 Corridor and Link Planning Principles – Cycling

General	**PP3.1** On-road bicycle lanes are only acceptable on collector or local roads where posted speed limits are 50 kph or less **PP3.2** Bicycle facilities, on or off-road should be highlighted with colored pavement to increase driver awareness **PP3.3** Off-road bicycle paths should be designed in a way that is climatically sensitive with a sufficient level of shade provision to maximize the hours of the day and days of the year in which they can be used **PP3.4** Where an off-road bicycle path passes by a bus stop, the track should be routed behind the stop **PP3.5** Dedicated cycling links should be included within large blocks to create permeable developments. Consideration should also be given if the cycle link should be allocated a ROW
C1 State Route	**PP3.6** Intersections on the State Route should include lamps for cyclists on traffic signals and markings on road pavements so drivers are aware of the need to look for cyclists **PP3.7** Where a State Route crosses a local or collector road, the surface should be raised to bicycle path height and the crossing clearly identified using a different pavement color or treatment to increase driver awareness **PP3.8** Where the minimum separation width cannot be achieved, a fence should be used to ensure maximum safety of cyclists
C2 City Route	**PP3.9** Where the volume and speed of cyclists is expected to be low, off-road cycling infrastructure can be shared with pedestrians **PP3.10** Where a City Route crosses a local or collector road, the surface should be raised to bicycle path height and the crossing clearly identified using a different pavement color or treatment to increase driver awareness **PP3.11** Where the minimum separation width cannot be achieved, a fence should be used to ensure maximum safety of cyclists **PP3.12** Where a state route runs along a segregated bike path, then the bike path can be on one side of the road, however there should be sufficient connections for cycle users to access the opposite side of the roads, especially where there are land uses which are likely to generate or attract cycle users.
C3 Local Route	**PP3.13** Where cycling is accommodated within a vehicle travel lane, the road must be marked to identify it is shared use **PP3.14** On roads with greater than 3,000 vehicles per day, full integration is prohibited **PP3.15** Local routes should include cycle facilities on both sides of the road, such as Bike Lanes and/or Shared Path. A combination of a Bike Lane in one direction and a Shared path in the opposing direction can be considered

Table 5.8 - ST3 Corridor and Link Planning Standards - Cycling

Cycling Route	Road Classification	Bike Lane/Path Width (M) *[One direction]*		Buffer Width to Roadway (M)	
		Preferred Min	Absolute Min	Preferred Min	Absolute Min
C1 State Route	Expressway/ Freeway	3.0	2.0	4.0	3.0
	Arterial	3.0	2.0	1.5	1.0
	Collector	3.0	2.0	1.5	1.0
	Local Road	Not recommended			
C2 City Route	Expressway/ Freeway	3.0	2.0	4.0	3.0
	Arterial	3.0	2.0	1.5	1.0
	Collector	[1.5]	[1.5]	1.5	1.0
	Local Road	Not recommended			

Table 5.8 - ST3 Corridor and Link Planning Standards - Cycling

Cycling Route	Road Classification	Bike Lane/Path Width (M) *[One direction]*		Buffer Width to Roadway (M)	
		Preferred Min	Absolute Min	Preferred Min	Absolute Min
C3 Local Route	Expressway/ Freeway	Not recommended			
	Arterial	Not recommended			
	Collector	1.5m (Bike lane) 3.0 (Shared path)	1.0m (Bike lane) 2.0 (Shared path)	1.5	0.5
	Local Road	1.5m (Bike lane) 3.0 (Shared path)	1.0m (Bike lane) 2.0 (Shared path)	1.5	0.5

Table 5.9 - Integration of Public Transport Routes and Road Classification

Road Classification	P1 Dedicated Route	P2 Priority Route	P3 Local Route
Urban Area			
Expressway	/	O	X
Arterial	/	/	/
Collector	O	/	/
Local Road	X	X	/
Rural Area			
Freeway	/	O	X
Arterial	/	/	/
Collector	X	/	/
Local Road	X	X	X

/ Recommended O Permitted, but not recommended
X Not recommended

5.3.3 PUBLIC TRANSPORT

Public transport plays a vital role in promoting accessibility, especially those with mobility impairments or without access to a private vehicle. Further, public transport is also critical to efficiently servicing economic centers with a capacity to move significantly more people per hour than general traffic. Consequently, promoting the use of public transport is critical to the realization of the desired outcomes described in the QNDF. It can make more efficient use of infrastructure, support the long- term productivity of the transport system, enhance the livability of Doha and Qatar more broadly, and reduce the environmental footprint of travel.

In addition to the general traffic hierarchy, this guide also sets out a hierarchy of public transport classifications that respond to the LOS required on different corridors. This hierarchy is intended to ensure that public transport cannot only be appropriately accommodated within road corridors but also that it can operate in a way that makes it a viable, competitive and convenient mode of travel.

P1 CITY ROUTE

Road-based mass transit, such as Bus Rapid Transport (BRT) or Light Rail Transport (LRT), has an important role to play in supporting the higher-order metro system spanning across Doha. Express bus or light rail services between suburbs, towns and economic centers can expand mass transit coverage to areas not serviced by the metro. Express bus or light rail services may also be a more feasible option on some key corridors where demand doesn't justify expansions of the metro network.

Express bus or light rail services are intended to be high frequency and high capacity providing a similar LOS to the metro and therefore are intended to operate in a dedicated ROW.

P2 PRIORITY ROUTE

Priority Routes are those that support a high frequency of service, and carry high numbers of people. These may feed the mass-transit network on dedicated routes, or expand access to the Doha metro system.

While Priority Routes can operate mixed with general traffic where congestion will not delay services, priority should be given to maintaining a high LOS for public transport where congestion risks delays and unreliability. This may include the provision of priority bus lanes or intersection priority for bus and light rail services.

P3 LOCAL ROUTE

These routes are found on all other roads where localized public transport operates. Design parameters include sufficient lane widths for local bus services to utilize the general traffic lanes.

Table 5.10 - PP4 Corridor and Link Planning Principles - Public Transport

General	**PP4.1** All travel lanes intended to accommodate bus routes should be a minimum 3.65 meters in width
P1 Dedicated Route	**PP4.2** Services should generally be confined to expressways and arterial roads **PP4.3** Services should be accommodated in a dedicated ROW either within the center median or side travel lanes **PP4.4** Stations/stops should be provided at intervals of greater than one kilometer and in areas that are easily accessible to optimize station catchments **PP4.5** In areas where stations/stops are, sidewalk widths should be increased to accommodate high pedestrian activity **PP4.6** If required bus stops can be in service lanes **PP4.7** All intersections and road crossings should be grade separated to avoid delays to services
P2 Priority Route	**PP4.8** Services should generally be confined to arterial roads **PP4.9** Public transport prioritization should be provided for where projected high traffic volumes risk service delays or unreliability. Examples include curbside bus priority lanes or intersection priority **PP4.10** Bus stops should be in dedicated lay-bys at approximately 500 meter spacing
P3 Local Route	**PP4.11** Services should generally be confined to local and collector roads **PP4.12** Collector road layouts and intersection design should accommodate connectivity of local routes between town centers and other areas of activity **PP4.13** Bus stops should be in dedicated lay-bys at approximately 300 meter spacing

Table 5.11 - ST4 Corridor and Link Planning Standards - Public Transport

Public Transport Route	Road Classification	Infrastructure Type	Minimum Median Width (M)		Minimum Travel Lane Width (M)
P1 Dedicated Route	Expressway/ Freeway	Dedicated Travel Zone	9.0 (LRT Travel Zone) 16.0 (LRT Station zone)		4.0m (BRT)
	Arterial	Dedicated Travel Zone	9.0 (LRT Travel Zone) 16.0 (LRT Station zone)		4.0m (BRT)
	Collector	Dedicated Travel Zone	9.0 (LRT Travel Zone) 16.0 (LRT Station zone)		4.0m (BRT)
	Local Road	N/A			
P2 Priority Route	Expressway/ Freeway	Dedicated curbside lane/shared lane	1.5*		3.65
	Arterial	Dedicated curbside lane/shared lane	Major	12.2*	3.65
			Minor	5.0*	
			Boulevard	6.0*	
	Collector	Dedicated curbside lane/shared lane	5.0*		3.65
	Local Road	N/A			
P3 Local Route	Expressway/ Freeway	N/A			
	Arterial	Shared travel lane	Major	12.2*	3.65
			Minor	5.0*	
			Boulevard	6.0*	
	Collector	Shared travel lane	5.0*		3.65
	Local Road	Shared travel lane	N/A		3.65

*Note: *As per baseline Table ST1*

5.3.4 FREIGHT AND HEAVY VEHICLE

The QNV sets out an aspiration for the State to become a diverse knowledge-based economy and a regional logistics hub. This aspiration is underpinned by the creation of major transport gateways, such as Hamad Port that deepens connectivity and integration with international markets, and economic zones intended to attract private sector investment.

The road network must support the efficient connectivity between these freight and logistics hubs. This includes ensuring reliable access is maintained as well as enabling business to take advantage of high-productivity vehicles that can reduce the cost of moving goods between hubs.

While recognizing the important role that freight and logistics will play in the future prosperity of the State, this guideline also recognizes the potentially negative amenity and safety impacts heavy vehicle movements can have on communities.

The hierarchy of freight and heavy vehicle routes is intended to balance these potential conflicts, ensuring appropriate connectivity and capacity is provided between precincts and heavy vehicle movements are directed away from residential areas and other areas of high pedestrian activity.

Planners must take cognizance of the dedicated Truck and Dangerous Goods Route Networks, and any heavy vehicle banned routes.

F1 STATE SIGNIFICANT ROUTE

Expressways and freeways designed for heavy and oversized vehicles connecting transport gateways to economic and industrial zones.

F2 MAJOR ROUTE

Arterial and collector roads designed for heavy and oversized vehicles servicing economic and industrial zones.

F3 LOCAL ROUTE

Connector and local roads within economic zones and industrial precincts intended to provide access to major industrial sites with reduced operating restrictions.

Table 5.12 - Integration of Freight and Heavy Vehicle Routes and Road Classifications

Road Classification	F1 State Significant Route	F2 Major Route	F3 Local Route
Expressway/ Freeway	/	O	X
Arterial	O	/	X
Collector	X	/	/
Local Road	X	X	/

***/** Recommended **O** Permitted, but not recommended*
***X** Not recommended*

Table 5.13 - PP5 Corridor and Link Planning Principles - Freight and Heavy Vehicles

General	**PP5.1** Bridges, culverts or other relevant structures must be designed to accommodate a Gross Vehicle Weight (GVW) of up to 45,000kg
F1 State Significant Route	**PP5.2** Services should generally be contained to expressways and freeways **PP5.3** Where demand justifies, freight and heavy vehicles may be accommodated in a dedicated right of way on expressways and freeways **PP5.4** Intersections with high volumes of freight vehicles should be designed to sufficiently accommodate turning radii and stacking space **PP5.5** Posted speed limits should be reduced by 20kmph for freight and heavy vehicles

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Table 5.13 - PP5 Corridor and Link Planning Principles - Freight and Heavy Vehicles

F2 **Major Route**	**PP5.6** Services should generally be contained to arterial and collector roads **PP5.7** Intersections with high volumes of freight vehicles should be designed to sufficiently accommodate turning radii and stacking space **PP5.8** Freight and heavy vehicles are prohibited at all times from major and minor collectors with educational/recreational/leisure/ park adjacent land uses **PP5.9** On roads with a posted speed limit of 80kmph or higher, posted speed limits should be reduced by 20kpmh for freight and heavy vehicles
F3 **Local Route**	**PP5.10** Services should generally be contained to collector and local roads **PP5.11** Segregated cycle lanes should be used on local and connector roads where there is a high volume of freight and heavy vehicles

Table 5.14 - ST5 Corridor and Link Planning Standards - Freight and Heavy Vehicles

Freight and Heavy Vehicle Route	Road Classification	Minimum Shoulder Width (M)
F1 **State Significant** **Route**	Expressway/Freeway	3.65
	Arterial	3.65
	Collector	N/A
	Local Road	N/A
F2 **Major Route**	Expressway/Freeway	3.00
	Arterial	3.00
	Collector	3.00
	Local Road	N/A
F3 **Local Route**	Expressway/Freeway	N/A
	Arterial	N/A
	Collector	0.35/0.35*
	Local Road	N/A*

*Note: *As per baseline Table ST1*

5.4 CONTEXT SPECIFIC PROVISIONS

5.4.1 CAPITAL CITY AND METROPOLITAN CENTERS

The three Capital City Centers are the heart of business and government, the largest generators of transport demand in Qatar and are home to the State's most significant institutions and tourist attractions. These dual roles create a need to balance mobility and access with the criticality of walkability for knowledge-intensive business and service industries that derive value from connectivity and collaboration.

Further, the roads within the Capital City Centers are among the most critical public spaces in the State, providing opportunities for retail and commerce and acting as the background to the experience of visitors and therefore Qatar's international appeal.

Like Capital City Centers, Metropolitan Centers are significant generators of transport demand with a concentration of retail, office, leisure and government activity. To support this function the road network must accommodate high capacity, high frequency public transport facilities and services, optimizing accessibility for industries that are located there.

Also fundamental to the success of metropolitan centers is ensuring that the majority of people are within an easy walking distance from public transport. This means that in designing the road network there is a need to balance the priorities of pedestrians with the need for access capacity.

The following tables provide the planning principles and standards that must be considered when planning a road corridor within a Capital City or Metropolitan Center.

Table 5.15 - PP6 Corridor and Link Planning Principles - Capital City and Metropolitan Centers

PP6.1 The road network should not create barriers to connectivity. This includes ensuring expressways are kept to the periphery or above or below grade to avoid impeding movement

PP6.2 Arterial roads are to form boulevards that offer greater amenity and priority for pedestrians and cyclists

PP6.3 Posted speed limits on boulevards should be reduced

PP6.4 Freight and heavy vehicle traffic through Capital City and Metropolitan Centers should be avoided all together, apart from where necessary to service relevant businesses and industries

PP6.5 The number of vehicle traffic lanes should be kept to a minimum and widths reduced to shorten crossing distances for pedestrians

PP6.6 Curbside parking and loading areas should be used rather than additional service roads

PP6.7 Distance between intersections on boulevards should be reduced to increase opportunities for crossing road corridors

PP6.8 Sidewalk widths should reflect the higher density of pedestrian activity and create opportunities for businesses to provide street-based food and beverage or other retail

PP6.9 Where off-road bicycle facilities are provided, these should be separated from the sidewalk to avoid pedestrian conflict

PP6.10 Where necessary, boulevards can be closed to vehicle traffic, affording priority to public transport users and pedestrians *(see Appendix A for example boulevards)*

Table 5.16 - ST6 Corridor and Link Planning Standards - Capital City and Metropolitan Centers

Road Classification	Roadway Typology	Maximum Posted Speed (KPH)	Minimum Travel Lane Width (M)	Minimum Median Width (M)	Minimum Intersection Spacing (M)	Sidewalk Width (M)		On-Street Parking provision
						Preferred Min	Absolute Min	
Expressway	Prohibited within Capital City and Metropolitan Centers unless below or above grade.							
Arterial - Major	Form boulevards within Capital City and Metropolitan Centers.							
Arterial - Minor	Form boulevards within Capital City and Metropolitan Centers.							
Boulevard	Max. 6 lane divided	50	3.30	6.0*	200	5.0	4.0	Restricted
Collector – Distributor	Not required within Capital City and Metropolitan Centers.							
Collector - Major	Max. 4 lane divided	50*	3.30	6.0*	100**	5.0	4.0	Permitted
Collector - Minor	Max. 2 lane undivided	50*	3.30	6.0*	50**	5.0	4.0	Permitted
Service Road	Not required within Capital City and Metropolitan Centers.							
Local Road	2-lane undivided	40	3.30	N/A*	As required**	3.0	2.0	*Permitted*

Note: *As per baseline Table ST1,
***As per baseline Table 4.1*

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5.4.2 TOWN CENTERS

Town Centers are found in suburban areas and provide essential services and retail for surrounding communities. Town Centers are locally focused and therefore generate lower travel demand than Metropolitan or Capital City Centers. Consequently, trips to Town Centers will generally be shorter and may attract a higher proportion of non-motorized transport.

Road networks within and to Town Centers should therefore promote walking and cycling, a calm traffic environment, and the participation of citizens within the local community. While Town Centers will need to be connected by public transport, arterial roads should generally be at the periphery to avoid high volumes of through traffic.

The following tables provide the planning principles and standards that must be considered when planning a road corridor within a Town Center.

Table 5.17 - PP7 Corridor and Link Planning Principles - Town Centers

PP7.1 Expressways and arterial roads should be kept to the periphery or above or below grade to avoid impeding movement

PP7.2 Priority is to be given to the amenity and safety of pedestrians and cyclists

PP7.3 Through traffic should be discouraged from Town Centers

PP7.4 Freight and heavy vehicle traffic through Town Centers should be avoided all together, apart from where necessary to service relevant businesses and industries

PP7.5 Road corridor widths within Town Centers should be kept at a minimum to shorten crossing distances for pedestrians. This includes restricting the number of traffic lanes and using curbside parking and loading rather than additional service roads

PP7.6 Distance between intersections or pedestrian crossings should be kept at a minimum to increase opportunities for crossing road corridors

PP7.7 The road network should not create barriers between Town Centers and surrounding communities

PP7.8 Where expressways or arterial roads are at the periphery of centers convenient crossings should be provided to mitigate their impact on accessibility

Table 5.18 - ST7 Corridor and Link Planning Standards - Town Centers

Road Classification	Roadway Typology	Maximum Posted Speed (KPH)	Minimum Travel Lane Width (M)	Minimum Median Width (M)	Minimum Intersection Spacing (M)	Sidewalk Width (M)		On-Street Parking provision
						Preferred Min	Absolute Min	
Expressway	Prohibited within Town Centers unless below or above grade.							
Arterial - Major	Prohibited within Town Centers unless below or above grade.							
Arterial - Minor	Max. 6 lane divided	50	3.30	6.0*	200	5.0	3.0	Restricted
Boulevard	Max. 6 lane divided	50	3.30	6.0*	200	5.0	3.0	Restricted
Collector – Distributor	Not required within Town Centers.							
Collector - Major	Max. 4 lane divided	50*	3.30	6.0*	100**	4.0	3.0	Permitted
Collector - Minor	Max. 2 lane undivided	50*	3.30	6.0*	50**	4.0	3.0	Permitted
Service Road	Max 1 lane one directional	50*	3.30	N/A*	50**	N/A		Permitted

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Table 5.18 - ST7 Corridor and Link Planning Standards - Town Centers

Road Classification	Roadway Typology	Maximum Posted Speed (KPH)	Minimum Travel Lane Width (M)	Minimum Median Width (M)	Minimum Intersection Spacing (M)	Sidewalk Width (M)		On-Street Parking provision
						Preferred Min	Absolute Min	
Local Road	2-lane undivided	40	3.30	N/A*	As required**	3.0	2.0	Permitted

*Note: *As per baseline Table ST1,*
***As per baseline Table 4.1*

5.4.3 ECONOMIC ZONES AND INDUSTRIAL PRECINTS

Economic zones and industrial precincts are fundamental to the states continued growth in productivity. The development of Qatar Economic Zones (QEZ) 1, 2 and 3 will add almost 76 million sq.m of economic and industrial land, supporting the manufacturing, logistics, advanced technology and aerospace businesses.

In these precincts the road networks primary function is to support the efficient movement of high-productivity vehicles, and accommodate loading and distribution needs. As many of the industries located in these precincts are time sensitive, it is essential that road corridors provide reliable, direct connections to expressways/freeways and to key transport gateways such as Hamad International Airport and Hamad port.

The following tables provide the planning principles and standards that must be considered when planning a road corridor within an economic zone or industrial precinct.

Table 5.19 - Corridor and Link Planning Principles - Economic Zones and Industrial Precincts

PP8.1 All roads that provide direct access to industrial and economic land uses should include space for parking and loading

PP8.2 Lane widths should be a minimum of 3.65 meters to accommodate freight and heavy vehicles

PP8.3 Adequate turning radii at intersections must be provided

Table 5.20 - ST8 Corridor and Link Planning Standards - Economic Zones and Industrial Precincts

Road Classification	Maximum Posted Speed (KPH)	On-Street Parking provision	On Street Parking Width (M)	
			Preferred Min	Absolute Min
Expressway	Direct access to economic zones and industrial precincts should not be provided from expressways.			
Arterial - Major	50	Prohibited*	3.0 (on Service Road only)	2.5 (on Service Road only)
Arterial - Minor	50	Permitted - Segregated from through traffic	3.0	2.5
Arterial - Boulevard	Not applicable in economic zones and industrial precincts.			
Collector – Distributor	Not applicable in economic zones and industrial precincts.			
Collector - Major	50*	Permitted	3.0	2.5
Collector - Minor	50*	Permitted	3.0	2.5
Service Road	Not applicable in economic zones and industrial precincts			
Local Road	40	Permitted*	3.0	2.5

Note: As per baseline Table ST1

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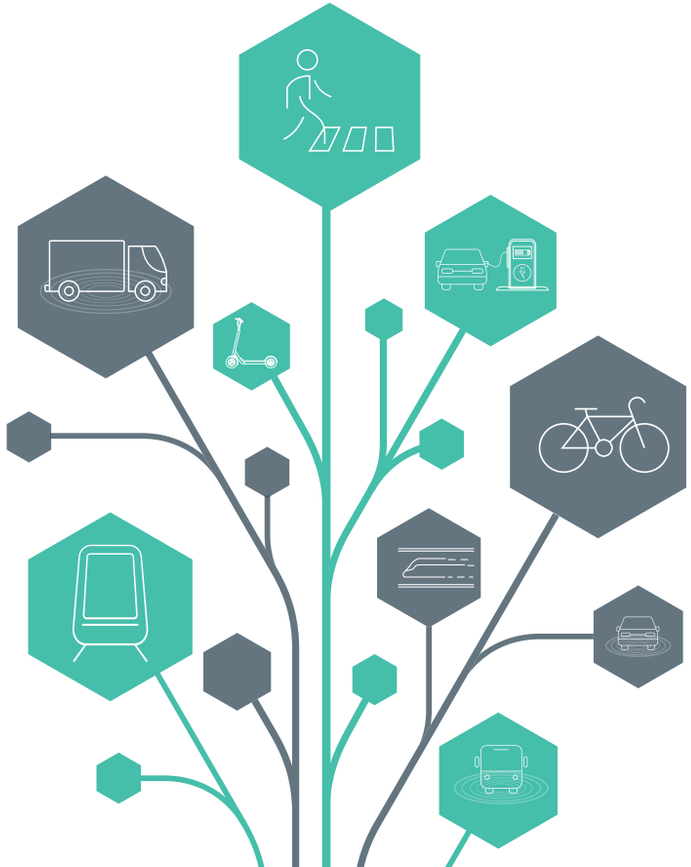

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نقـل متكامـل ومسـتدام للجميـع

INTEGRATED & SUSTAINABLE TRANSPORT FOR ALL

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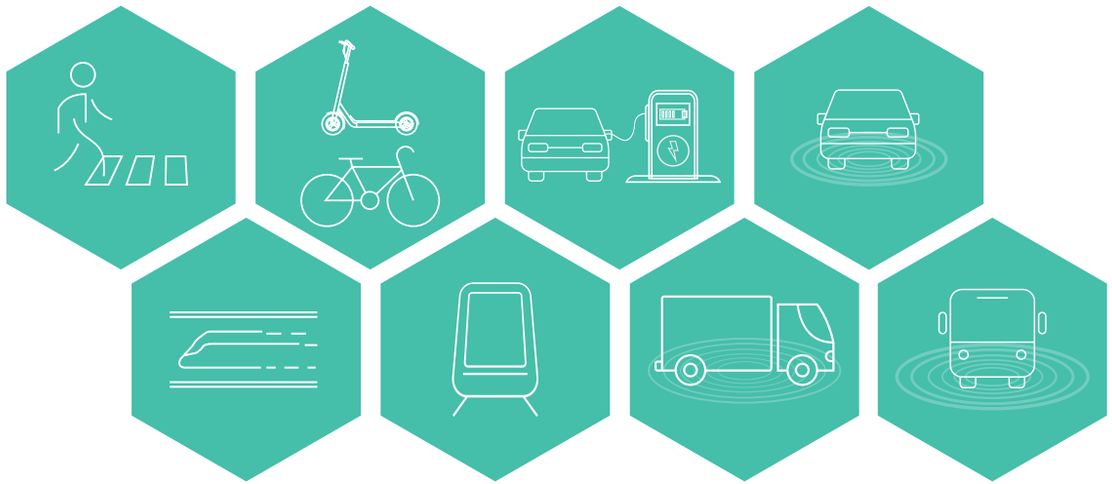
IMPLEMENTATION



6 IMPLEMENTATION

The following section provides a summary of the principles and standards that must be used when planning a road corridor or link within Qatar. It should also be noted that the proposed design standard values in this Guide which conflict with 2020 QHDM are for recommendation only and shall not be used as a reference for road design until the next update of QHDM.

6.1 SUMMARY OF CORRIDOR AND LINK PLANNING PRINCIPLES

6.1.1 ROAD TYPOLOGY PRINCIPLES

PP1 Baseline Principles

Road Classification	Urban Area	Rural Area
All	**PP1.1** Where existing roads are being reconstructed, lane width may be reduced to 3.30m for roads with a design speed of 80kph or less **PP1.2** In areas where traffic volumes are low, carriageways may be narrowed over a short length to a single lane as a traffic-calming feature **PP1.3** Where a corridor includes provision for a petrol station, the ROW must accommodate a service road	
R1 **Expressway/ Freeway**	**PP1.4** Noise attenuation measures should be adopted where an expressway/freeway is located in proximity to residential areas. Non- motorized transport infrastructure should be located on the outside of any noise attenuation structures	**PP1.5** Noise attenuation measures should be adopted where a freeway is located in proximity to residential areas
R2 **Arterial**	**PP1.6** Median widths must consider the need for left turn lanes at control intersections. For a single left turn lane a minimum width of 5.3m is required **PP1.7** Where no left turn lanes are required, median widths may be rationalized to fit the available right of way and minimize land use impacts **PP1.8** Parallel parking lanes should only be considered on roads with posted speed limits of 50kph or less	**PP1.9** Median widths must consider the need for left turn lanes at control intersections. For a single left turn lane a minimum width of 5.3m is required **PP1.10** Where an arterial road cuts through a rural town speed limits should be reduced to maximize safety
R3 **Collector**	**PP1.11** Median widths must consider the need for left turn lanes at control intersections. For a single left turn lane a minimum width of 5.3m is required **PP1.12** Parallel parking lanes should only be considered on roads with posted speed limits of 50kph or less	**PP1.13** Median widths must consider the need for left turn lanes at control intersections. For a single left turn lane a minimum width of 5.3m is required **PP1.14** Parallel parking lanes should only be considered on roads with posted speed limits of 50kph or less
R4 **Local Road**	**PP1.15** Parallel parking lanes should only be considered on roads with posted speed limits of 50kph or less	**PP1.16** Parallel parking lanes should only be considered on roads with posted speed limits of 50kph or less

6.1.2 MODE SPECIFIC PRINCIPLES

PP2 Walking Principles

General	**PP2.1** In pedestrian heavy environments ROW widths should be kept to a minimum to ensure suitable crossing of roads **PP2.2** Sidewalks should be designed in a way that promotes universal accessibility with ramps or dips with tactile pavers provided at all intersections and crossings and steps within the pedestrian environment avoided **PP2.3** Sidewalks should be designed in a way that is climatically sensitive with a sufficient level of shade provision to maximize the hours of the day and days of the year in which they can be used **PP2.4** Where a sidewalk crosses a side road, the intersection should be designed to passively slow vehicle turn-in speeds through measures such as tighter corner radii to ensure pedestrian safety **PP2.5** Where a development block is over 100m in length and/or width, it is recommended that a pedestrian route is provided through the site to create permeable developments. Consideration should also be given if the pedestrian route should be allocated as ROW. **PP2.6** Where pedestrian activity is particularly high and the LOS is being compromised, a pedestrian only corridor should be created, and vehicle movements should be diverted to another route *(see Appendix A for example pedestrian only corridors)* **PP2.7** Locate street furniture, such as light poles, signposts, and refuse bins outside of the designated pedestrian sidewalk
W1 Prestige Routes	**PP2.8** Where a prestige route follows an arterial road, that arterial road should be designed as a boulevard **PP2.9** Where a prestige route follows a local road, pedestrians should be given priority with vehicular use restricted to access only, speeds reduced and through trips prohibited **PP2.10** Where a prestige route crosses a local or collector road, the street or road surface should be raised to pedestrian path height and the crossing clearly identified using a different pavement color or treatment to increase driver awareness
W2 City Routes	**PP2.11** Where a City Route crosses a local or collector road, the street or road surface should be raised to pedestrian path height and the crossing clearly identified using a different pavement color or treatment to increase driver awareness

PP3 Cycling Principles

General	**PP3.1** On-road bicycle lanes are only acceptable on collector or local roads where posted speed limits are 50 kph or less **PP3.2** Bicycle facilities, on or off-road should be highlighted with colored pavement to increase driver awareness **PP3.3** Off-road bicycle paths should be designed in a way that is climatically sensitive with a sufficient level of shade provision to maximize the hours of the day and days of the year in which they can be used **PP3.4** Where an off-road bicycle path passes by a bus stop, the track should be routed behind the stop **PP3.5** Dedicated cycling links should be included within large blocks to create permeable developments. Consideration should also be given if the cycle link should be allocated a ROW **PP3.6** For the safety of cyclists and motorist provide a minimum 1m buffer between on-street parking and the bike path.
C1 State Route	**PP3.7** Intersections on the State Route should include lamps for cyclists on traffic signals and markings on road pavements so drivers are aware of the need to look for cyclists **PP3.8** Where a State Route crosses a local or collector road, the surface should be raised to bicycle path height and the crossing clearly identified using a different pavement color or treatment to increase driver awareness **PP3.9** Where the minimum separation width cannot be achieved, a fence should be used to ensure maximum safety of cyclists

PP3 Cycling Principles

C2 **City Route**	**PP3.10** Where the volume and speed of cyclists is expected to be low, off-road cycling infrastructure can be shared with pedestrians **PP3.11** Where a City Route crosses a local or collector road, the surface should be raised to bicycle path height and the crossing clearly identified using a different pavement color or treatment to increase driver awareness **PP3.12** Where the minimum separation width cannot be achieved, a fence should be used to ensure maximum safety of cyclists **PP3.13** Where a state route runs along a segregated bike path, then the bike path can be on one site of the road, however there should be sufficient connections for cycle users to access the opposite side of the roads, especially where there are land uses which are likely to generate or attract cycle users.
C3 **Local Route**	**PP3.14** Where cycling is accommodated within a vehicle travel lane, the road must be marked to identify it is for shared use **PP3.15** On roads with greater than 3,000 vehicles per day, full integration is prohibited **PP3.16** Local routes should include cycle facilities on both sides of the road, such as Bike Lanes and/or Shared Path. A combination of a Bike Lane in one direction and a Shared path in the opposing direction can be considered

PP4 Public Transport Principles

General	**PP4.1** All travel lanes intended to accommodate bus routes should be a minimum 3.65 meters in width
P1 **Dedicated Route**	**PP4.2** Services should generally be confined to expressways and arterial roads **PP4.3** Services should be accommodated in a dedicated ROW either within the center median or side travel lanes **PP4.4** Stations/stops should be provided at intervals of greater than one kilometer and in areas that are easily accessible to optimize station catchments **PP4.5** In areas where stations/stops are, sidewalk widths should be increased to accommodate high pedestrian activity **PP4.6** If required bus stops can be in service lanes **PP4.7** All intersections and road crossings should be grade separated to avoid delays to services
P2 **Priority Route**	**PP4.8** Services should generally be confined to arterial roads **PP4.9** Public transport prioritization should be provided for where projected high traffic volumes risk service delays or unreliability. Examples include curbside bus priority lanes or intersection priority **PP4.10** Bus stops should be in dedicated lay-bys at approximately 500 meter spacing
P3 **Local Route**	**PP4.11** Services should generally be confined to local and collector roads **PP4.12** Collector road layouts and intersection design should accommodate connectivity of local routes between town centers and other areas of activity **PP4.13** Bus stops should be in dedicated lay-bys at approximately 300 meter spacing

PP5 Freight and Heavy Vehicle Principles

General	**PP5.1** Bridges, culverts or other relevant structures must be designed to accommodate a Gross Vehicle Weight (GVW) of up to 45,000kg
F1 **State Significant Route**	**PP5.2** Services should generally be contained to expressways and freeways **PP5.3** Where demand justifies, freight and heavy vehicles may be accommodated in a dedicated right of way on expressways and freeways **PP5.4** Intersections with high volumes of freight vehicles should be designed to sufficiently accommodate turning radii and stacking space **PP5.5** Posted speed limits should be reduced by 20kmph for freight and heavy vehicles
F2 **Major Route**	**PP5.6** Services should generally be contained to arterial and collector roads **PP5.7** Intersections with high volumes of freight vehicles should be designed to sufficiently accommodate turning radii and stacking space **PP5.8** Freight and heavy vehicles are prohibited at all times from major and minor collectors with educational/recreational/ leisure/park adjacent land uses **PP5.9** On roads with a posted speed limit of 80kmph or higher, posted speed limits should be reduced by 20kpmh for freight and heavy vehicles
F3 **Local Route**	**PP5.10** Services should generally be contained to collector and local roads **PP5.11** Segregated cycle lanes should be used on local and connector roads where there is a high volume of freight and heavy vehicles

6.1.3 CONTEXT SPECIFIC PRINCIPLES

Capital City and Metropolitan Centers

PP6.1 The road network should not create barriers to connectivity. This includes ensuring expressways are kept to the periphery or above or below grade to avoid impeding movement

PP6.2 Arterial roads are to form boulevards that offer greater amenity and priority for pedestrians and cyclists

PP6.3 Posted speed limits on boulevards should be reduced

PP6.4 Freight and heavy vehicle traffic through Capital City and Metropolitan Centers should be avoided all together, apart from where necessary to service relevant businesses and industries

PP6.5 The number of vehicle traffic lanes should be kept to a minimum and widths reduced to shorten crossing distances for pedestrians

PP6.6 Curbside parking and loading areas should be used rather than additional service roads

PP6.7 Distance between intersections on boulevards should be reduced to increase opportunities for crossing road corridors

PP6.8 Sidewalk widths should reflect the higher density of pedestrian activity and create opportunities for businesses to provide street-based food and beverage or other retail

PP6.9 Where off-road bicycle facilities are provided, these should be separated from the sidewalk to avoid pedestrian conflict

PP6.10 Where necessary, boulevards can be closed to vehicle traffic, affording priority to public transport users and pedestrians *(see Appendix A for example boulevards)*

Town Centers

PP7.1 Expressways and arterial roads should be kept to the periphery or above or below grade to avoid impeding movement

PP7.2 Priority is to be given to the amenity and safety of pedestrians and cyclists

PP7.3 Through traffic should be discouraged from Town Centers

PP7.4 Freight and heavy vehicle traffic through Town Centers should be avoided all together, apart from where necessary to service relevant businesses and industries

PP7.5 Road corridor widths within Town Centers should be kept at a minimum to shorten crossing distances for pedestrians. This includes restricting the number of traffic lanes and using curbside parking and loading rather than additional service roads

PP7.6 Distance between intersections or pedestrian crossings should be kept at a minimum to increase opportunities for crossing road corridors

PP7.7 The road network should not create barriers between Town Centers and surrounding communities

PP7.8 Where expressways or arterial roads are at the periphery of centers convenient crossings should be provided to mitigate their impact on accessibility

Economic Zones and Industrial Precincts

PP8.1 All roads that provide direct access to industrial and economic land uses should include space for parking and loading

PP8.2 Lane widths should be a minimum of 3.65 meters to accommodate freight and heavy vehicles

PP8.3 Adequate turning radii at intersections must be provided

6.2 SUMMARY OF CORRIDOR AND LINK PLANNING STANDARDS

6.2.1 ROAD TYPOLOGY STANDARDS

ST1 Baseline Standards

Road Classification		Roadway Typology	Posted Speed (KPH)	Travel Lane Width (M)	Minimum Median Width (M)	Shoulder Widths (M) [L/R]	On-Street Parking Provision	Width of Parking Lane (M)
Urban Area								
Expressway		8-10 lane divided	80/100	3.65	3.0	1.20/3.00	Prohibited	N/A
Arterial	**Major**	4-8 lane divided	50/80	3.65	12.2	1.20/3.00	Prohibited	N/A
	Minor	4-8 lane divided	50/80	3.65	6.0	0.35/0.35	Restricted	2.5
	Boulevard	4-8 lane divided	50/80	3.65	6.0	0.35/0.35	Restricted	2.5
Collector	**Distributor**	One-directional	50/80	3.65	QHDM*	0.35/0.35	Prohibited	N/A
	Major	4-6 lane divided	50	3.65	6.0	0.35/0.35	Restricted	2.5
	Minor	2-lane undivided or 4-lane divided	50	3.65	6.0	N/A	Restricted	2.5
Service Road		1-2 lane one directional	50	3.65	N/A	N/A	Permitted	2.5
Local Road		2-lane undivided	30-50	3.65	N/A	N/A	Permitted	2.5
Rural Area								
Freeway		6+ lane divided	100/120	3.65	10.0	3.00/3.00	Prohibited	N/A
Arterial		4 or 6 lane divided	80/100	3.65	10.0	3.00/3.00	Prohibited	N/A
Collector		4-lane divided	50/80	3.65	10.0	3.00/3.00	Permitted	2.5
Local Road		2-lane undivided	50	3.65	N/A	N/A	Permitted	2.5

*Note: *refer to QHDM guidance*

6.2.2 MODE SPECIFIC STANDARDS

ST2 Walking Standards

Walking Route	Road Classification	Sidewalk Width (M)		Buffer Width to Roadway (M)	
		Preferred Min	Absolute Min	Preferred Min	Absolute Min
General	**Expressway/ Freeway**	2.0	2.0	4.0	3.0
	Arterial	2.0	2.0	1.2	0.5
	Collector	2.0	2.0	1.2	0.5
	Local Road	2.0	2.0	1.2	0.5
W1 Prestige Route	**Expressway/ Freeway**	Not recommended			
	Arterial	5.0	3.0	2.0	1.2
	Collector	5.0	3.0	2.0	1.2
	Local Road	5.0	3.0	1.2	0.5
W2 City Route	**Expressway/ Freeway**	Not recommended			
	Arterial	4.0	3.0	2.0	1.2
	Collector	4.0	3.0	2.0	1.2
	Local Road	4.0	3.0	1.2	0.5

ST3 Cycling Standards

Cycling Route	Road Classification	Bike Lane/Path Width (M) *[One direction]*		Buffer Width to Roadway (M)	
		Preferred Min	Absolute Min	Preferred Min	Absolute Min
C1 State Route	Expressway/ Freeway	3.0	2.0	4.0	3.0
	Arterial	3.0	2.0	1.5	1.0
	Collector	3.0	2.0	1.5	1.0
	Local Road	Not recommended			
C2 City Route	Expressway/ Freeway	3.0	2.0	4.0	3.0
	Arterial	3.0	2.0	1.5	1.0
	Collector	[1.5]	[1.5]	1.5	1.0
	Local Road	Not recommended			
C3 Local Route	Expressway/ Freeway	Not recommended			
	Arterial	Not recommended			
	Collector	1.5m (Bike lane) 3.0 (Shared path)	1.0m (Bike lane) 2.0 (Shared path)	1.5	0.5
	Local Road	1.5m (Bike lane) 3.0 (Shared path)	1.0m (Bike lane) 2.0 (Shared path)	1.5	0.5

ST4 Public Transport Standards

Public Transport Route	Road Classification	Infrastructure Type	Minimum Median Width (M)		Minimum Travel Lane Width (M)
P1 Dedicated Route	Expressway/ Freeway	Dedicated Travel Zone	9.0 (LRT Travel Zone) 16.0 (LRT Station zone)		4.0m (BRT)
	Arterial	Dedicated Travel Zone	9.0 (LRT Travel Zone) 16.0 (LRT Station zone)		4.0m (BRT)
	Collector	Dedicated Travel Zone	9.0 (LRT Travel Zone) 16.0 (LRT Station zone)		4.0m (BRT)
	Local Road	N/A			
P2 Priority Route	Expressway/ Freeway	Dedicated curbside lane/shared lane	1.5*		3.65
	Arterial	Dedicated curbside lane/shared lane	Major	12.2*	3.65
			Minor	*6.0**	
			Boulevard	*6.0**	
	Collector	Dedicated curbside lane/shared lane	5.0*		3.65
	Local Road	N/A			
P3 Local Route	Expressway/ Freeway	N/A			
	Arterial	Shared travel lane	Major	12.2*	3.65
			Minor	6.0*	
			Boulevard	6.0*	
	Collector	Shared travel lane	6.0*		3.65
	Local Road	Shared travel lane	N/A		3.65

*Note: *As per baseline Table ST1*

SECTION 6

ST5 Freight and Heavy Vehicle Standards

Freight and Heavy Vehicle Route	Road Classification	Minimum Shoulder Width (M)
F1 State Significant Route	Expressway/Freeway	3.65
	Arterial	3.65
	Collector	N/A
	Local Road	N/A
F2 Major Route	Expressway/Freeway	3.00
	Arterial	3.00
	Collector	3.00
	Local Road	N/A
F3 Local Route	Expressway/Freeway	N/A
	Arterial	N/A
	Collector	0.35/0.35*
	Local Road	N/A

*Note: *As per baseline Table ST1*

6.2.3 CONTEXT SPECIFIC PRINCIPLES

ST6 Capital City and Metropolitan Centers Standards

Road Classification	Roadway Typology	Posted Speed (KPH)	Travel Lane Width (M)	Minimum Median Width (M)	Minimum Intersection Spacing (M)	Sidewalk Width (M)		On-Street Parking provision
						Preferred Min	Absolute Min	
Expressway	Prohibited within Capital City and Metropolitan Centers unless below or above grade.							
Arterial - Major	Form boulevards within Capital City and Metropolitan Centers.							
Arterial - Minor	Form boulevards within Capital City and Metropolitan Centers, however for guidance a cross-section for minor arterial is provided.							
Boulevard	Max. 6 lane divided	50	3.30	6.0	200	5.0	3.0	Restricted - Segregated from through traffic
Collector – Distributor	Not required within Capital City and Metropolitan Centers.							
Collector - Major	Max. 4 lane divided	50*	3.30	6.0*	100**	5.0	3.0	Permitted
Collector - Minor	Max. 2 lane undivided	50*	3.30	6.0*	50**	5.0	2.0	Permitted
Service Road	Not required within Capital City and Metropolitan Centers.							
Local Road	2-lane undivided	40	3.30	N/A*	As required**	3.0	1.8	Permitted

Note: *As per baseline Table ST1 / **As per baseline Table 4.1

ST7 Town Centers Standards

Road Classification	Roadway Typology	Posted Speed (KPH)	Travel Lane Width (M)	Minimum Median Width (M)	Minimum Intersection Spacing (M)	Sidewalk Width (M)		On-Street Parking provision
						Preferred Min	Absolute Min	
Expressway	Prohibited within Town Centers unless below or above grade.							
Arterial - Major	Prohibited within Town Centers unless below or above grade.							
Arterial - Minor	Max. 6 lane divided	50	3.30	*As per baseline*	200	5.0	3.0	Restricted - Segregated from through traffic

SECTION 6

ST7 Town Centers Standards

Road Classification	Roadway Typology	Posted Speed (KPH)	Travel Lane Width (M)	Minimum Median Width (M)	Minimum Intersection Spacing (M)	Sidewalk Width (M)		On-Street Parking provision
						Preferred Min	Absolute Min	
Boulevard	Max. 6 lane divided	50	3.30	6.0	200	5.0	3.0	Restricted - Segregated from through traffic
Collector – Distributor	Not required within Town Centers.							
Collector - Major	Max. 4 lane divided	50*	3.30	6.0*	100**	4.0	3.0	Permitted
Collector - Minor	Max. 2 lane undivided	50*	3.30	6.0*	50**	4.0	2.0	Permitted
Service Road	Max 1 lane one directional	50*	3.30	N/A*	50**	N/A		Permitted
Local Road	2-lane undivided	40	3.30	N/A*	As required**	3.0	1.8	Permitted

Note: *As per baseline Table ST1 / **As per baseline Table 4.1

ST8 Economic Zones and Industrial Precincts Standards

Road	Posted Speed (KPH)	On-Street Parking provision	On Street Parking Width (M)	
			Preferred Min	Absolute Min
Expressway	Direct access to economic zones and industrial precincts should not be provided from expressways.			
Arterial - Major	50	*As per baseline*	3.0	2.5
Arterial - Minor	50	Permitted - Segregated from through traffic	3.0	2.5
Arterial - Boulevard	Not applicable in economic zones and industrial precincts.			
Collector – Distributor	Not applicable in economic zones and industrial precincts.			
Collector - Major	50*	Permitted	3.0	2.5
Collector - Minor	50*	Permitted	3.0	2.5
Service Road	Not applicable in economic zones and industrial precincts			
Local Road	40	Permitted*	*3.0*	2.5

Note: As per baseline Table ST1

6.3 TRANSPORT ASSESSMENT FRAMEWORK FOR CORRIDOR PLANNING

The Transportation Assessment Framework (TAF) developed as part of the Updated TMPQ sets out the methodology, approach, criteria, tools and parameters for the assessment of transportation plans, projects or schemes considered in the context of the Master Plan.

TAF is a comprehensive, systematic, objective and transparent process, enabling unbiased decisions to be made on the basis of the analysis of a comprehensive set of trade-offs of positive and adverse impacts. The ultimate aim of the TAF process is to establish a consistent basis which

enables the selection of schemes (or a combined set of schemes), based on the comparative assessment of alternative options, resulting in an optimized solution which provides the greatest amount of benefits for the Qatari society as a whole.

The TAF approach can be standardized for the assessment of any plan, project or scheme. It can also be customized to address the specific requirements of government agencies and private developers in Qatar in order to appraise their transportation and urban development schemes.

TAF comprise of Multi-Criteria Analysis (MCA) and Cost-Benefit Analysis (CBA) and therefore transportation planners should be familiar with the TAF process while planning corridors. It is recommended that the corridors being planned should be appraised using TAF before going to implementation stage.

6.4 DEPARTURES FROM GUIDELINES

Any departures from these guidelines or the QHDM will considered and assessed as per the latest QHDM departures from standards process.

6.4.1 WHAT HAPPENS IF THE PRINCIPLES AND STANDARDS CANNOT BE MET?

If a road ROW cannot accommodate the typical cross-section dimensions specified for the relevant road classification, modal provision, and context, the following priorities apply:

- Opportunities for the redistribution of traffic should be explored to enable the reduction in the number of traffic lanes. This may necessitate increasing lanes on some other arterials or changing some nearby collector streets to minor arterials;
- Where there is a low likelihood of future expansion of the road, median widths can be reduced in accordance with the required minimums in the QHDM;
- Opportunities for the redirection of State or City cycle routes should be explored to enable the diversion of off-road bicycle facilities onto other corridors;
- Where cyclist numbers are low, opportunities should be explored to share cycle and pedestrian facilities; and
- Where a ROW is highly constrained, a one way operation could be explored, provided it does not have a negative impact on the wider road network.

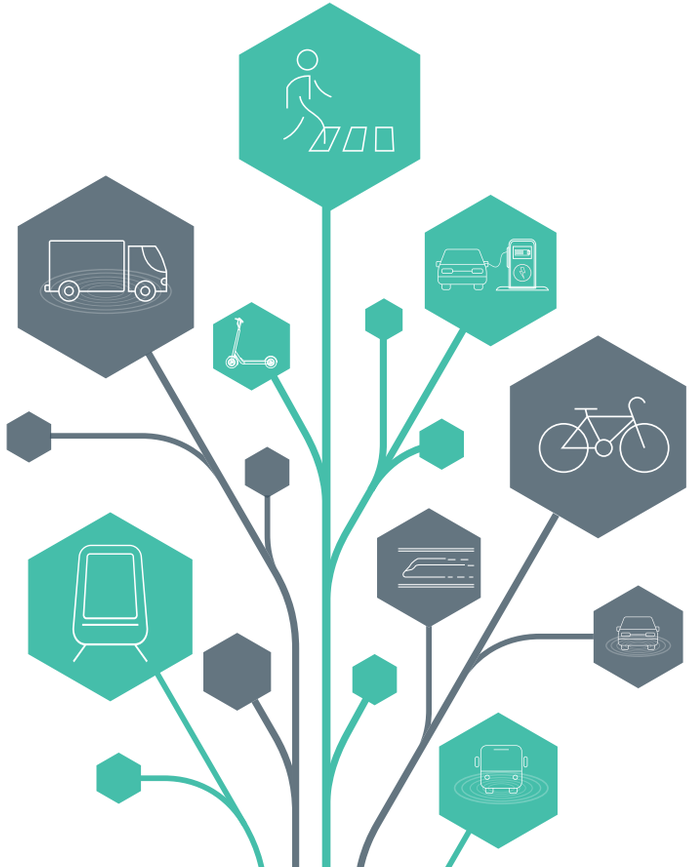
Generally, sidewalk widths must not be reduced below the relevant stated minimum, ensuring the safety and amenity of pedestrians is not compromised.

6.4.2 WHAT FACTORS WILL BE CONSIDRED IN ASSESSING A DEPARTURE FROM THE GUIDELINES

In considering whether dispensation from these typical provisions will be approved, the Overseeing Authority will consider the proposal against the guiding principles for road planning in Qatar, specifically:

- Will the proposal compromise the **safety** of road users, especially pedestrians and cyclists?
- Is the proposal **context sensitive** and likely to lead to a road environment conducive to the existing surrounding environment or the future aspirations described in land use plans?

- Is the proposal **efficient and productive**, and will it enable the desired levels of service to be achieved, particularly where the proposal may impact on the punctuality and reliability of on- road public transport services?
- Will the proposal compromise Qatar's **sustainability** goals to create an attractive urban?
- environment where walking and cycling is a viable and safe mode of travel?
- Will the proposal compromise long-term corridor **flexibility** - whether this relates to the future expansion of infrastructure, inclusion of dedicated public transport facilities, or any other relevant considerations?



2050

نقـل متكامـل ومسـتدام للجميـع

INTEGRATED & SUSTAINABLE TRANSPORT FOR ALL

Qatar 2050 قطر
الخطة الشاملة للنقل
Transportation Master Plan

وزارة المواصلات والاتصالات
MINISTRY OF TRANSPORT AND COMMUNICATIONS

2050

Updating Transportation
Master Plan For Qatar
TMPQ

APPENDIX A
Contemporary Approaches to Road Planning

نقل متكامل ومستدام للجميع
INTEGRATED & SUSTAINABLE TRANSPORT FOR ALL

Qatar 2050 قطر
الخطة الشاملة للنقل
Transportation Master Plan

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A.1 EXAMPLE PLANNING FRAMEWORKS

Over recent decades, the deficiencies of an exclusively functional approach to road planning have been recognized by road authorities world over. It has led to the emergence of more holistic approaches that attempt to effectively manage trade-offs between the various roles roads play. Examples of these approaches include Complete Streets from North America and also adopted in the Urban Street Design Manual in the United Arab Emirates (UAE), and Movement and Place from the United Kingdom and Australia.

These international examples provide a comparison to the existing approach in Qatar and offer useful insights into how road planning can form an integrated part of the long-term development plans and aspirations for the State.

Complete streets

A.1.1 COMPLETE STREETS

Complete Streets requires roads to be planned, designed, operated and maintained to enable safe, convenient and comfortable travel for users of all ages and abilities, regardless of their mode of transportation.

The concept, from the United States (US), originated in the 1970s stemming from a recognition that a focus on designing roads exclusively around private vehicles was having negative impacts on communities and cities. The first policy which was introduced in Oregon required new or rebuilt roads to accommodate bicycles and pedestrians too. Since then the sophistication of Complete Streets has evolved and its use has expanded across most of the US, Canada, and a similar approach is used in the UAE.

A.1.2 UNITED STATES

Many jurisdictions in the US use legislation to legally enforce the principles of Complete Streets. In the State of New York, the Complete Streets Act states that application of the principles will lead to a 'cleaner, greener transportation system and 'more citizens will achieve the health benefits associated with non- motorized forms of transportation while traffic congestion and auto related air pollution will be reduced'.

Standard design considerations include:

- Pedestrian infrastructure such as footpaths, raised crossings;
- Traffic calming measures to passively lower speeds;
- Bicycle accommodation, particularly at intersections; and
- Public transit accommodation.

Importantly, Complete Streets requires a proper evaluation of road users and their various needs rather than a reactive approach that sees sidewalks and bicycle lanes added to otherwise unchanged roads. The approach encourages a deeper understanding of the levels of service each group requires and how the design of roads should respond.

In some jurisdictions in the US the process of designing a cross-section is driven largely by the modal hierarchy. Determining this at the very start of the process ensures that the design sufficiently prioritizes the right mode.

A typical modal hierarchy applied on projects in New York is:

1. **Pedestrian**
2. **Bicycle**
3. **Transit**
4. **Vehicle**

In New York road design is starting to operate under a 'pedestrian first' policy. This inversion of the dominant, vehicle-based paradigm will allow the city's transport network to grow safely, sustainably and equitably.

A.1.3 CANADA

Canadian jurisdictions also follow the Complete Streets approach to planning and designing road corridors, recognizing the shortcomings of traditional functional road classification and design.

In Edmonton the Complete Streets process seeks to ensure that planning for road corridors is linked to the realization of outcomes. This is evident by the first stage in the process involving definition of project goals (see below figure. This involves highlighting the issues that are to be resolved and the project context.

Similar to New York, Edmonton also defines modal priorities prior to establishing the road typology. This is seen as critical to making trade-offs further down the line should right of ways be constrained.

Unlike many jurisdictions in the US, Edmonton also includes the movement of goods and service within the modal prioritization.

After modal priority has been established the street typology is determined using three categories: standard functional classification, the relationship to the street, and land use context.

Specific cross-section elements will then be determined, and trade-offs made where necessary.

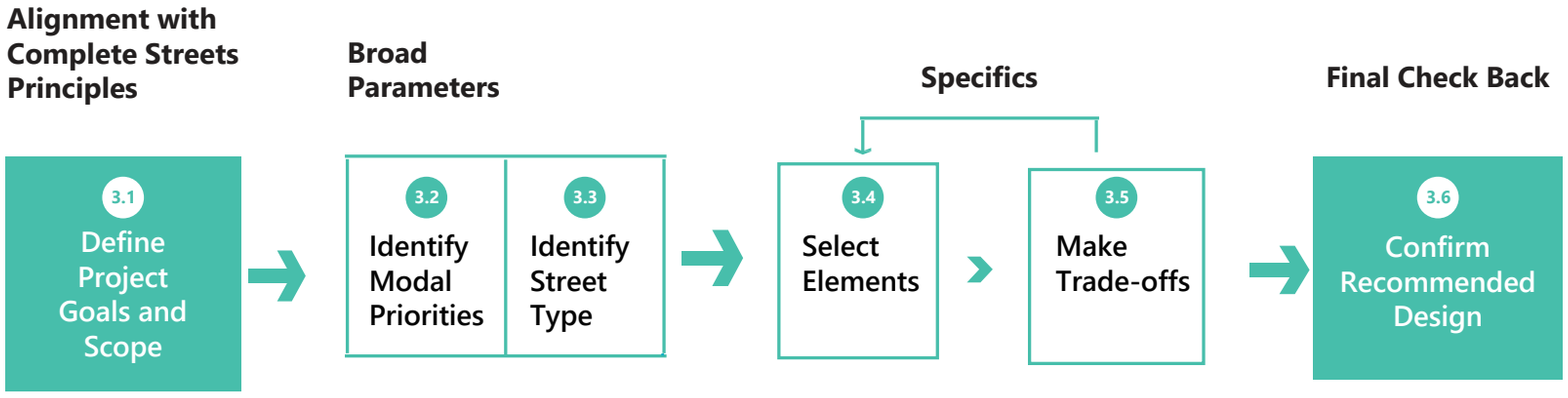
A.1.4 ABU DHABI

The Abu Dhabi Urban Street Design Manual (ADUSDM) is a street planning guidance document that aims to promote context sensitive design for urban streets where the urban context is strongly related to the local land use characteristics, nearby activities, historical and environmental considerations and the general character of the neighborhood. Traditional access/mobility functions are considered of less importance for the manual's purposes.

Consistent with the Complete Streets Guidelines in Chicago, the ADUSDM places pedestrians front and center of the modal hierarchy, followed by transit, bicycles and vehicles. This hierarchy is adopted for the design of any road throughout the Emirate.

The guide also provides specific design principles for individual land use contexts. This is a good approach to demonstrating the extra provisions that need to be made in the planning and design of road corridors within certain areas of the Emirate.

Unlike other guidelines, the ADUSDM goes into a lot of detail regarding streetscape design and specific landscaping treatments.



Process For Planning Complete Streets in Edmonton
Source: Complete Streets Guidelines, City of Edmonton

A.1.5 ABU DHABI

The Abu Dhabi Urban Street Design Manual (ADUSDM) is a street planning guidance document that aims to promote context sensitive design for urban streets where the urban context is strongly related to the local land use characteristics, nearby activities, historical and environmental considerations and the general character of the neighborhood. Traditional access/mobility functions are considered of less importance for the manual's purposes.

Consistent with the Complete Streets Guidelines in Chicago, the ADUSDM places pedestrians front and center of the modal hierarchy, followed by transit, bicycles and vehicles. This hierarchy is adopted for the design of any road throughout the Emirate.

The guide also provides specific design principles for individual land use contexts. This is a good approach to demonstrating the extra provisions that need to be made in the planning and design of road corridors within certain areas of the Emirate.

Unlike other guidelines, the ADUSDM goes into a lot of detail regarding streetscape design and specific landscaping treatments.

TYPE	Sculptural Free Standing and Independent Elements	Trees and Landscaping	Vertical Screens
Photo References			
			

Types of Shading Identified Within Abu Dhabi Urban Street Design Manual

Source: Urban Street Design Manual, Abu Dhabi

A.1.6 MOVEMENT AND PLACE

United Kingdom and Australia

Movement and Place, also referred to as Link and Place, is even more explicit in its recognition of the various roles of roads. Movement and Place, which was devised in the United Kingdom (UK) but is now also commonly used in Australia, adopts an entirely different approach to the classification of roads, classifying each based on it's status or significance as a 'place' in addition to its more traditional role in the hierarchy of mobility. Place ratings are intended to recognize the civic importance of roads and streets, their role as places to dwell as opposed to move, and in serving pedestrian activity in additional to vehicular.

Movement and Place is intended to deliver design outcomes that are sensitive to their immediate urban environment and therefore considers the design of road corridors in segments rather than applying universal standards along its length.

The Movement and Place approach involves a two-dimensional street classification which groups road and street types that have similar land-use activities and share similar combinations of users. This is then used for the following:

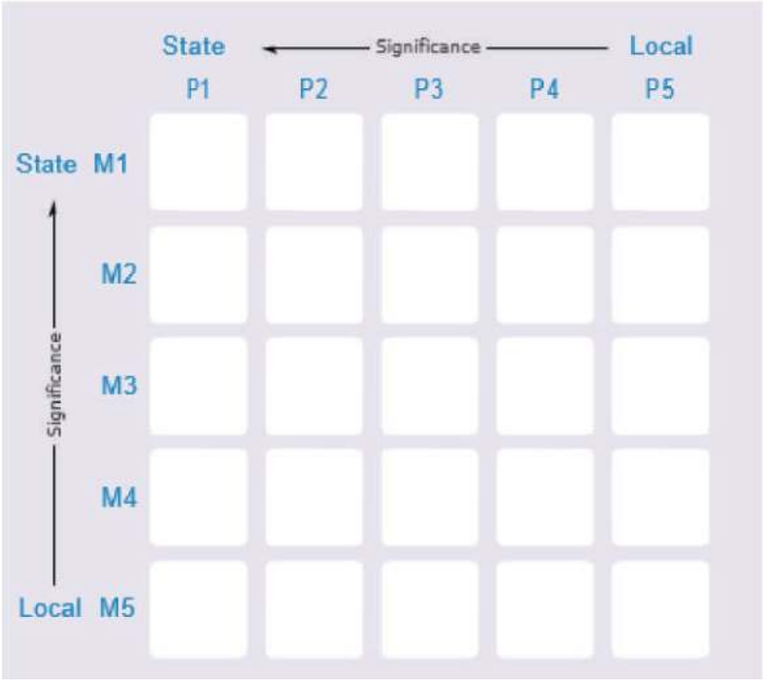
- The classification of streets;
- Measuring street performance; and
- Defining maintenance standards

Whilst this approach has several merits, the shortcoming of the framework in the UK is that it does not address how to approach the planning of an entire urban street network, nor how to design appropriately for competing street uses on the busier sections of street, where space is limited.

In Australia this issue has been addressed by giving consideration to the mix of transport modes and defining priority at the network level. At the options development stage the framework steps through the following process:

- Defining the road and street type of a particular link;
- Determine network operating parameters;
- Determine the gap between current and future levels of service; and
- Determine a set of potential interventions.

Whilst the Movement and Place framework is useful for street classification, the guideline document in Victoria includes no design principles or standards that would actually assist to prepare a cross- section or design response for a road corridor.



Link and Place Matrix

Source: Link and Place Framework, Department for Transport, United Kingdom

Definition of Road Typology Using Movement and Place Framework

Source: Movement and Place Framework, Department of Transport, Victoria, Australia

A.1.7 LESSONS FOR QATAR

Review of contemporary benchmarks provides a guide to how road planning and design could similarly evolve

in Qatar. Observations drawn from these examples that are of particular relevance are:

- A successful guide is not driven by engineering design standards, but by principles and a clear definition of the outcomes that the road network seeks to facilitate;
- Adoption of a 'modal hierarchy' can ensure that the design of a road corridor sufficiently prioritizes the right mode. In most cases the private vehicle should be at the bottom of this hierarchy; and
- Road corridors need to be considered in segments rather than as a single, unchanging artery

A.2 EXAMPLE BOULEVARDS FROM AROUND THE WORLD

Elizabeth Street, Melbourne, Australia

30m ROW

42nd Street, New York City, USA

30m ROW

Oxford Street, London, England

26m ROW

Swanston Street, Melbourne, Australia

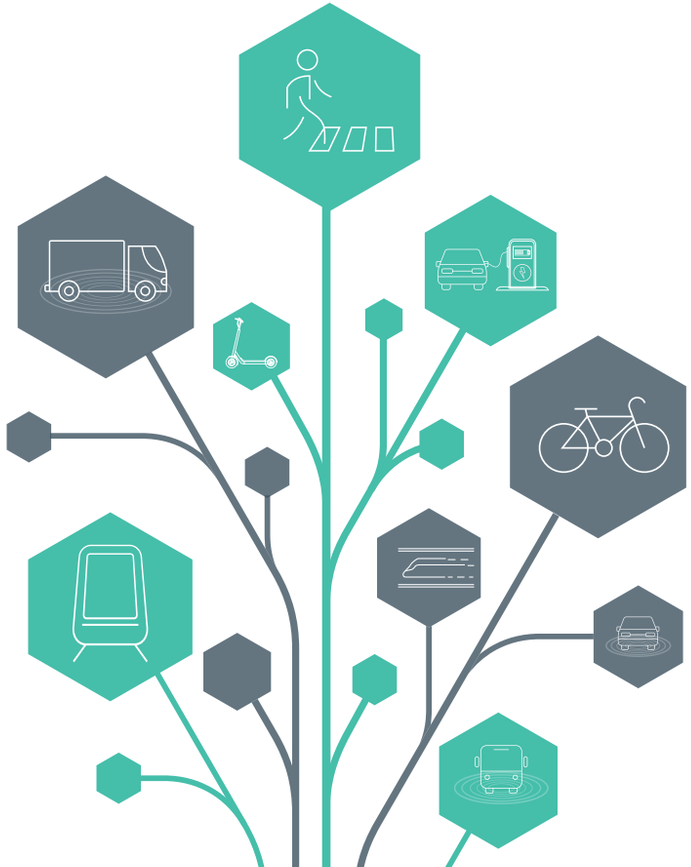
30m ROW

Oxford Street, Sydney, Australia

30m ROW

George Street, Sydney, Australia

24m ROW



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APPENDIX B
Gap Analysis

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B.1 MODE SPECIFIC PROVISIONS - GAP ANALYSIS

The below tables highlights where there are proposed changes to planning standards and the justification for this.

B.1.1. WALKING

		Road Planning Guide for Qatar 2020	Qatar - QHDM 2020	London (TfL) - Streetscape Guidance 2019	Edmonton, Canada – Complete Streets Guidelines	Abu Dhabi - USDM	Justification for deviation
Sidewalk width	**Preferred Min**	General – 2.0m Prestige Routes - 5.0m City Routes - 4.0m	Boulevards/Arterials/ Collectors – 4.5m Local/Serv Roads – 3.0m *(V3, P19, Sec 4.3.2)*	All Streets - 2.0m (Part E, Section 11)	All streets - 2.0m *(Sec 4.2.1, Pg. 49)*	Boulevard – 2.7m Avenue – 2.5m Street – 2.1m Lane – 1.8m *(Ch. 5, Pg. 12)*	Minimum standards shouldn't just be based on the type of road, but also the role that the sidewalk plays within the pedestrian network. Recognizing the national importance of some pedestrian routes, Prestige and City classifications have been introduced with slightly wider minimum sidewalk widths.
	Absolute Min	General - 1.8m Prestige and City Routes - 3.0m	Boulevards/Arterials - 3.0m Collectors - 2.0m Local/Serv Roads - 1.8m *(V3, P19, Sec 4.3.2)*	All Streets - 1.5m *(Part E, Section 11)*	All streets - 1.8m *(Sec 4.2.1, Pg. 49)*	Boulevard – 2.3m Avenue – 2.3m Street – 2.1m Lane – 1.8m *(Ch. 5, Pg. 19)*	
Buffer width to roadway	**Preferred Min**	Expressway/freeways – 4.0m Arterial/Collectors/Local Roads – 1.2m Prestige/City Routes Arterial/ collector – 2.0m Local road – 1.2m	All types of roads – 1.2m *(QHDM, Vol3, Part19, Section 4.3.2)*	N/A	N/A Only furnishing zone	Boulevard – 1.5m Avenue – 1.5m Street – 0.5m Lane – 0.5m *(Ch 5, Pg. 12)*	Arterials and collector roads also serve a high mobility function. Increased acceptable minimum buffer widths will ensure maximum safety where large volumes of pedestrians are prevalent.
	Absolute Min	Expressway/freeways – 3.0m Arterial/Collectors/Local Roads – 0.5m Prestige/City Routes Arterial/ collector – 1.2m Local road – 0.5m	All types of roads - 0.5m *(QHDM, Vol3, Part19, Section 4.3.2)*	All roads – 0.45m *(Part E, Section 11)*	N/A Only furnishing zone	All roads – 0.15m *(Ch 5, Pg. 19)*	

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B.1.2. CYCLING

		Road Planning Guide for Qatar 2020	Qatar - QHDM 2020	London (TfL)- Streetscape Guidance 2019	Edmonton, Canada – Complete Streets Guidelines	Abu Dhabi - USDM	Justification for deviation
Bike lane/ path width	**Preferred Min**	State and City Routes – 3.0m	Bike Path and Shared Paths - 3.0m *(V3, P19, Sec 5.3.11)*	All Streets Low cycle flow - 1.5m High cycle flow - 3.5m *(Ch 4, Section 4.4)*	Cycle track-2.1m Share path-3.0m *(Sec4.1.1 pg33)*	2.0m *(Ch 5, Pg. 12)*	Different terminology has been adopted for the new Road Guide. State Cycling Routes are those that are forecast to have a significant volume of cyclists.
	Absolute Min	State and City Routes - 2.0m	Bike Path and Shared Paths - 2.0m *(V3, P19, Sec 5.3.11)*	All Streets Low cycle flow - 1.2m High cycle flow - 2.5m *(Ch 4, Section 4.4)*	Cycle track-1.5m Share path-2.5m *(Sec4.1.1 pg33)*	1.5m *(Ch 5, Pg. 19)*	
Buffer width to roadway	**Preferred Min**	State/City routes next to Expressways – 4.0m State/City routes next to arterials/collectors – 1.5m	All types of roads – 1.5m *(V3, P19, Sec 5.3.13)*	N/A	N/A	Boulevard – 1.5m Avenue – 1.5m Street – 0.5m Lane – 0.5m *(Ch 5, Pg. 12)*	Increased buffer widths will ensure maximum safety where large volumes of cyclists are prevalent.
	Absolute Min	State/City routes next to Expressways – 3.0m State/City routes next to arterials/collectors – 1.0m	All types of roads - 0.5m *(V3, P19, Sec 5.3.13)*	All roads – 0.45m *(Part E, Section 11)*	All roads - 0.5m *(Sec4.1.1 pg33)*	All roads – 0.15m *(Ch 5, Pg. 19)*	

B.1.3. FREIGHT AND HEAVY VEHICLES

	Road Planning Guide for Qatar 2020	Qatar - QHDM 2020	London - TfL	Edmonton, Canada – Complete Streets Guidelines	Abu Dhabi - USDM	Justification for deviation
Minimum Shoulder Width	3.65m - State Significant Routes	Urban Areas: Expressways and Major Arterials - 1.20/3.00 Minor Arterials and Collectors - 0.35/0.35 Rural Areas: Expressways, Arterials and Collectors - 3.00/3.00 *(V1, P03, Sec 6.2.2, Tb 6.2)*	2.75 - 3.3m	N/A	N/A	A higher paved shoulder width is necessary on roads carrying a significant number of trucks.

B.2 CONTEXT SPECIFIC PROVISIONS - GAP ANALYSIS

The below tables highlights where there are proposed changes to planning standards.

B.2.1. CAPITAL CITY AND METROPOLITAN CENTERS

	Road Planning Guide for Qatar 2020	Qatar - QHDM 2020	UK - DMRB 2020	Edmonton, Canada – Complete Streets Guidelines	Abu Dhabi - USDM	Justification for deviation
Road Typology	Expressway -Prohibited Major/minor Arterial - Become boulevards Boulevard - Max 6 lanes divided Major Collector - Max 4 lanes divided Minor Collector - Max 2 lanes undivided Service Road should be discouraged.	Boulevard - 4-8 lanes divided Major Collector - 4-6 lanes divided Minor Collector - 2 lanes undivided, or 4 lanes divided Service Road - 1-2 lane one direction *(V1, P02, Sec5.7, Tb 5.1)*	Urban Motorway 4-8 lanes Collector 4-6 lanes Divided Single Carriageway -2 lanes *(DMRB, CD 127)*	N/A	Frontage lanes permitted (on Boulevards and avenues) *(Ch 5, Pg. 6)*	High mobility roads should be restricted to maximize safety within dense urban areas. Service Roads, and the number of lanes should be restricted to limit the total ROW width. This will make it easier for pedestrians to cross major roads

APPENDIX B

B.2.1. CAPITAL CITY AND METROPOLITAN CENTERS

	Road Planning Guide for Qatar 2020	Qatar - QHDM 2020	UK - DMRB 2020	Edmonton, Canada – Complete Streets Guidelines	Abu Dhabi - USDM	Justification for deviation
Maximum Posted Speed (KPH)	Boulevard – 50kph Local Road – 40kph	Boulevard - 50/80kph Local Road - 50kph *(V1, P02, Sec 5.7, Tb 5.1)*	Urban Motorway 90 k/h Collector All Purpose 60k/h Single Carriageway -30- 50k/h *(DMRB, CD 127)*	Arterial – 50-60kmh Collector – 50kph Local – 50kph *(Sec4.1.2 pg37)*	Boulevard – 40kph Avenue – 40kph Street – 30kph Lane – 20kph *(Ch 3, Pg. 8)*	Speed limits should be reduced in dense urban environments where pedestrian activity is highest.
Minimum Travel Lane Width (M)	All roads - 3.3m	All road - 3.65m *(V1, P03, Sec 6.2.1)*	Urban Motorway 3.65-3.70m Collector All Purpose 4.65-3.70m Single Carriageway -3.65m *(DMRB, CD 127)*	All roads - 3.2m *(Sec4.1.1 pg33)*	All roads - 3.3m *(Ch 5, Pg. 6)*	Lane widths should be reduced slightly to discourage high vehicle speeds, and to reduce the ROW so that pedestrians can cross roads easier.
Minimum Median Width (M)	Boulevard – 6m	Boulevard - 12.2m *(V1, P03, Sec 6.2.5, Tb 6.3)*	Absolute Minimum 1.8m Preferred Minimum 2.5m *(DMRB, CD 127)*	N/A	Boulevards and Avenues – 6m *(Ch 5, Pg. 6)*	Excessive median widths make right of ways too large and limit pedestrian movements across the roadway Only boulevards that require LRT within the median should require a 12.0m central median.

B.2.1. CAPITAL CITY AND METROPOLITAN CENTERS

		Road Planning Guide for Qatar 2020	Qatar - QHDM 2020	UK - DMRB 2020	Edmonton, Canada – Complete Streets Guidelines	Abu Dhabi - USDM	Justification for deviation
Sidewalk Width (M)	**Preferred Min**	Boulevard, Major and Minor Collectors - 5.0m Local Road – 3.0m	Boulevards/Arterials/ Collectors – 4.5m Local Roads – 3.0m *(V3, P19, Sec 4.3.2)*	All Streets (2.0m) *Streetscape Guidance 2019 (Part E, Section 11)*	All streets - 2.6m *(Sec 4.2.1, Pg. 49)*	Boulevard – 4.3m Avenue – 3.8m Street – 3.3m Access Lane – 1.8m *(Ch 5, Pg. 6)*	Sidewalks within major urban centers should provide a greater level of room for high pedestrian volumes.
	Absolute Min	Boulevard, Major and Minor Collectors - 4.0m Local Roads – 1.8m	Boulevards/Arterials - 3.0m Collectors - 2.0m Local Roads - 1.8m *(V3, P19, Sec 4.3.2)*	All Streets (1.5m) *Streetscape Guidance 2019 (Part E, Section 11)*	All streets – 2.1m *(Sec 4.2.1, Pg. 49)*	Boulevard – 3.3m Avenue – 2.9m Street – 2.9m Access Lane – 1.8m *(Ch 5, Pg. 19)*	
On Street Parking Provision		Boulevard – Restricted Major Collector - Permitted Minor Collector - Permitted	Boulevard - Restricted Major Collector - Restricted Minor Collector – Restricted *(V1, P02, Sec 5.7, Tb 5.1)*	No guidance. Absolute Minimum Width - 1.8m *Streetscape Guidance 2019 (Part E, Section 11)*	No restrictions identified	Boulevard – Only within frontage lane Access Street – Prohibited *(Ch 5, Pg. 6)*	With lower speed limits and a greater prevalence of commercial activity, parallel parking should be permitted on boulevards and collector roads.

APPENDIX B

B.2.2. TOWN CENTERS

	Road Planning Guide for Qatar 2020	Qatar - QHDM 2020	UK - DMRB 2020	Edmonton, Canada – Complete Streets Guidelines	Abu Dhabi - USDM	Justification for deviation
Road Typology	Expressway - Prohibited Major Arterial - Prohibited Minor Arterial – Max 6 lanes divided Boulevard - Max 6 lanes divided Major Collector - Max 4 lanes divided Minor Collector - Max 2 lanes undivided Service Road - Max 1 lane one direction	Minor Arterial – 4-8 lane divided Boulevard - 4-8 lanes divided Major Collector - 4-6 lanes divided Minor Collector - 2 lanes undivided/4 lanes divided Service Road - 1-2 lane one direction *(V1, P02, Sec 5.7, Tb5.1)*	Urban Motorway 4-8 lanes Collector 4-6 lanes Divided Single Carriageway -2 lanes *(DMRB, CD 127)*	N/A	Frontage lanes permitted (on Boulevards and avenues) *(Ch 5, Pg. 8)*	The number of lanes should be restricted to limit the total ROW. This will make it easier for pedestrians to cross highways.
Maximum Posted Speed (KPH)	Boulevard – 50kph Local Road – 40kph	Boulevard - 50/80kph Local Road - 50kph *(Vl1, P02, Sec5.7, Tb5.1)*	Urban Motorway 90 k/h Collector All Purpose 60k/h Single Carriageway -30-50k/h *(DMRB, CD 127)*	Arterial – 50-60kph Collector – 50kph Local – 50kph *(Sec4.1.2 pg[37])*	Boulevard – 40kph Avenue – 40kph Street – 30kph Lane – 20kph *(Ch 3, Pg. 8)*	Speed limits should be reduced in Town Centers where pedestrian activity is highest.
Minimum Travel Lane Width (M)	All types of roads - 3.3m	All roads - 3.65m *(V1, P03, Sec 6.2.1)*	Urban Motorway 3.65- 3.70m Collector All Purpose 4.65-3.70m Single Carriageway-3.65m *(DMRB, CD 127)*	All roads - 3.2m *(Sec4.1.1 pg[33])*	All roads - 3.3m *(Ch 5, Pg. 8)*	Lane widths should be reduced slightly to discourage high vehicle speeds, and to reduce the ROW so that pedestrians can cross road easier
Minimum Median Width (M)	Boulevard - 6m	Boulevard – 12.2m *(V1, P03, Sec 6.2.5, Tb 6.3)*	Absolute Minimum 1.8m Preferred Minimum 2.5m *(DMRB, CD 127)*	N/A	Boulevards and Avenues – 6m *(Ch 5, Pg. 8)*	Excessive median widths make right of ways too large and limit pedestrian movements across the highway. Only boulevards that require LRT within the median should require a 12.0m central median. Minor arterials should only ever have a max of 2 left turning lanes requiring 6.6m max.

B.2.2. TOWN CENTERS

		Road Planning Guide for Qatar 2020	Qatar - QHDM 2020	UK - DMRB 2020	Edmonton, Canada – Complete Streets Guidelines	Abu Dhabi - USDM	Justification for deviation
Sidewalk Width (M)	**Preferred Min**	Minor Arterial/Boulevard – 5.0m Major and Minor Collectors - 4.0m Local Road – 3.0m	Boulevards/Arterials – 4.5m Collectors/Local/Serv Roads – 3.0m *(V3, P19, Sec 4.3.2)*	All Streets (2.0m) *Streetscape Guidance 2019 (Part E, Section 11)*	All streets - 2.6m *(Sec 4.2.1, Pg. 49)*	Boulevard – 4.3m Avenue – 3.8m Street – 3.3m Access Lane – 1.8m *(Ch 5, Pg. 6)*	Town Centers are forecasted to serve every day retail and commercial needs, therefore sidewalks should provide ample room for high pedestrian volumes.
	Absolute Min	Minor Arterial/ Boulevard/ Major and Minor Collectors - 3.0m Local Road - 2.0m	Boulevards/Arterials - 3.0m Collectors - 2.0m Local/ Serv Roads - 1.8m *(V3, P19, Sec 4.3.2)*	All Streets (1.5m) *Streetscape Guidance 2019 (Part E, Section 11*	All streets – 2.1m *(Sec 4.2.1, Pg. 49)*	Boulevard – 3.3m Avenue – 2.9m Street – 2.9m Access Lane – 1.8m *(Ch 5, Pg. 19)*	
On Street Parking Provision		Minor Arterial - Restricted (segregated from travel lane) Boulevard – Restricted Major Collector - Permitted Minor Collector - Permitted	Boulevard - Restricted Major Collector - Restricted Minor Collector – Restricted *(V1, P02, Sec 5.7, Tb 5.1)*	No guidance. Absolute Minimum Width - 1.8m *Streetscape Guidance 2019 (Part E, Section 11)*	No restrictions identified	Boulevard – Only within frontage lane Access Street – Prohibited *(Ch 5, Pg. 8)*	With lower speed limits and a greater prevalence of commercial activity, parallel parking should be permitted on boulevards and collector roads.

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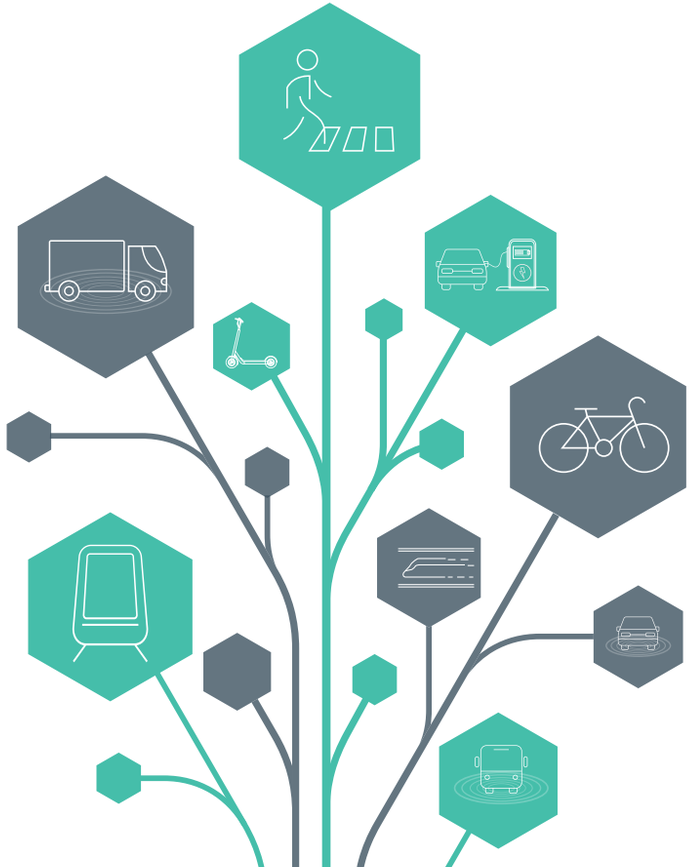
B.2.3. ECONOMIC ZONES AND INDUSTRIAL PRECINCTS

		Road Planning Guide for Qatar 2020	Qatar - QHDM 2020	UK - DMRB 2020	Edmonton, Canada – Complete Streets Guidelines	Abu Dhabi - USDM	Justification for deviation
Maximum Posted Speed (KPH)		Minor Arterial – Max 50kph Collector Distributor – Max 50kph Local Road – Max 40kph	Minor Arterial - 50/80kph Collector Distributor - 50/80kph Local Road - 50kph *(V1, P02, Sec 5.7, Tb 5.1)*	Collector All Purpose 60k/h Single Carriageway -30- 50k/h *(DMRB, CD 127)*	Arterial – 50-60kph Collector – 50kph Local – 50kph *(Sec4.1.2 pg37)*	Boulevard – 60kph Avenue – 60kph Street – 30kph Lane – 20kph *(Ch 3, Pg. 8)*	Speed limits should be reduced from the baseline to ensure maximum safety within these Economic Zones and Industrial Precincts. This is not just for pedestrians, but also for vehicles, where there will be a large number of trucks maneuvering.
On-Street Parking		Minor Arterial – Restricted (segregated from travel lane) Major Collector - Permitted Minor Collector - Permitted	Minor Arterial - Restricted Major Collector - Restricted Minor Collector - Restricted *(V1, P02, Sec 5.7, Tb 5.1)*	N/A	N/A	Avenue – Permitted Street – Permitted *(Ch 5, Pg. 14)*	Economic Zones and Industrial Precincts should allow for sufficient parking and loading areas for an efficient operation.
On Street Parking Width (M)	**Preferred Min**	All roads – 3.0m	*N/A*	N/A	All roads – 2.5m *(Sec4.1.1 pg33)*	All roads – 3.5m *(Ch 5, Pg. 14&19)*	Freight and heavy vehicles are wider than normal vehicles, therefore parking lanes widths should be increased within industrial precincts and economic zones
	Absolute Min	All roads – 2.5m	All roads – 2.5m *(V1, P03, Sec 6.2.9)*	N.A	All roads – 2.4m Local roads– 2.2m *(Sec4.1.1 pg33)*	All roads – 3.3m *(Ch 5, Pg. 14&19)*	



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APPENDIX C
Typical Cross Sections

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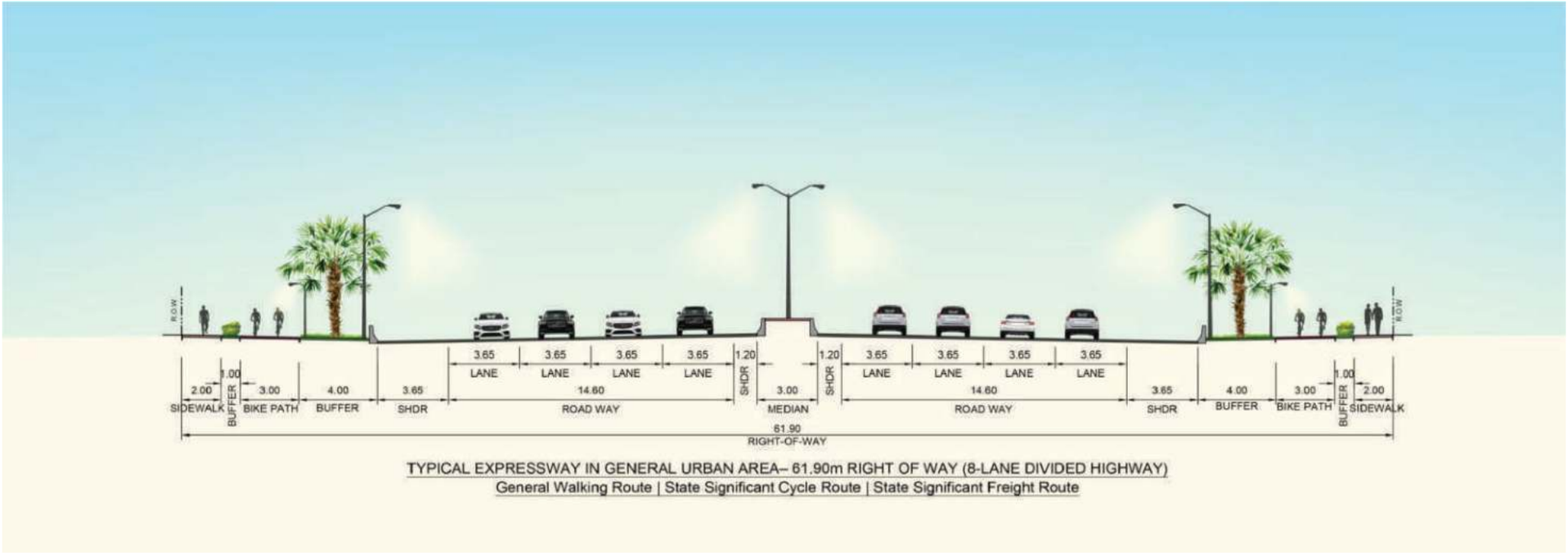
C.1 ROADS WITHIN GENERAL URBAN AREAS

Note: The proposed standard values in these cross sections are for planning guidance only and shall not be used as a reference for road design purposes.



TYPICAL EXPRESSWAY IN GENERAL URBAN AREA– 61.90m RIGHT OF WAY (8-LANE DIVIDED HIGHWAY)
General Walking Route | State Significant Cycle Route | State Significant Freight Route

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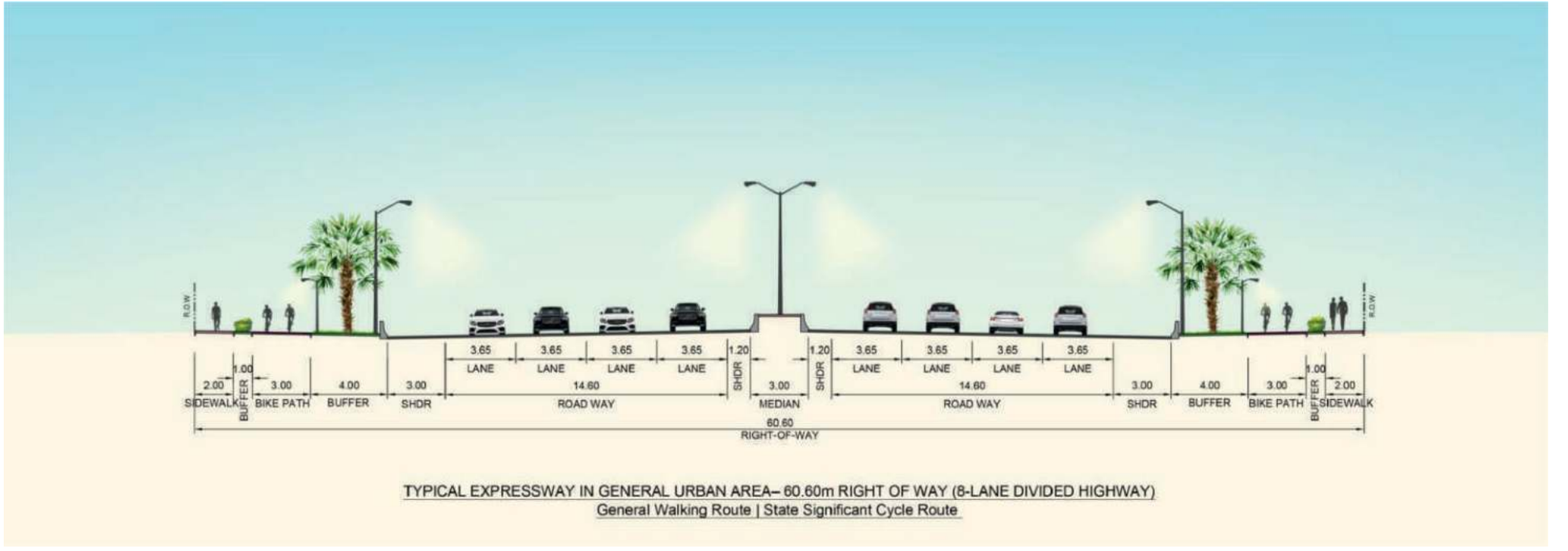

TYPICAL EXPRESSWAY IN GENERAL URBAN AREA– 60.60m RIGHT OF WAY (8-LANE DIVIDED HIGHWAY)
General Walking Route | State Significant Cycle Route

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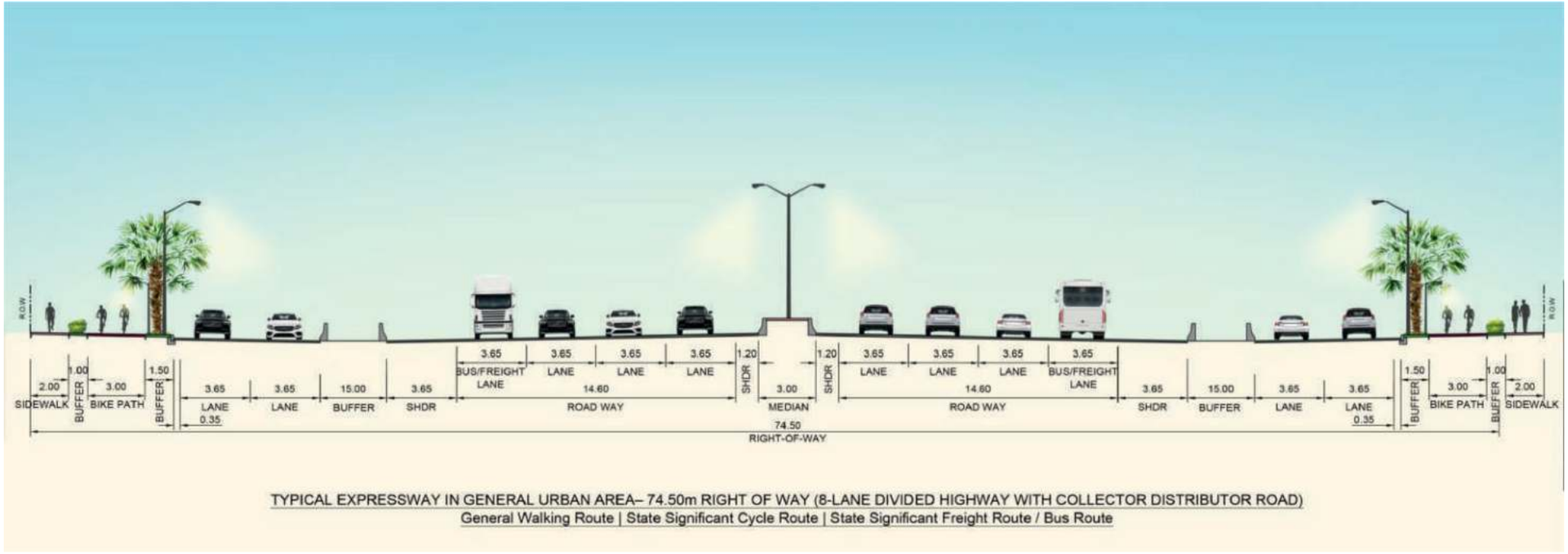
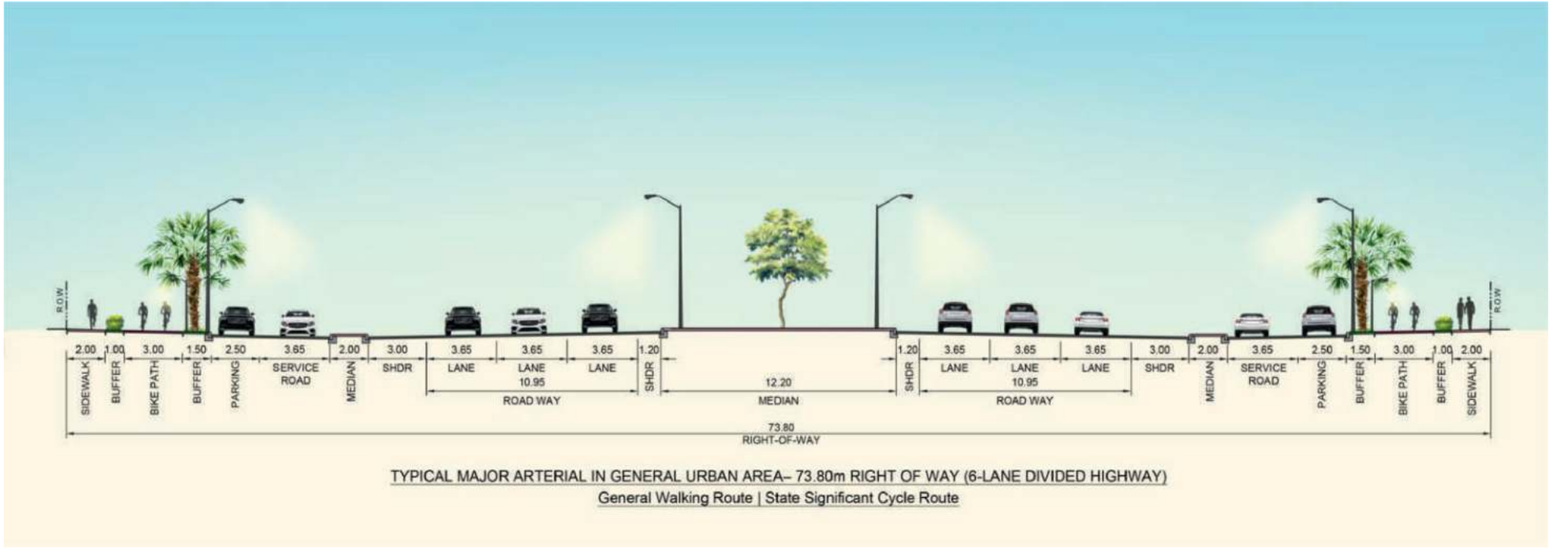


TYPICAL EXPRESSWAY IN GENERAL URBAN AREA– 74.50m RIGHT OF WAY (8-LANE DIVIDED HIGHWAY WITH COLLECTOR DISTRIBUTOR ROAD)
General Walking Route | State Significant Cycle Route | State Significant Freight Route / Bus Route



TYPICAL MAJOR ARTERIAL IN GENERAL URBAN AREA– 73.80m RIGHT OF WAY (6-LANE DIVIDED HIGHWAY)
General Walking Route | State Significant Cycle Route

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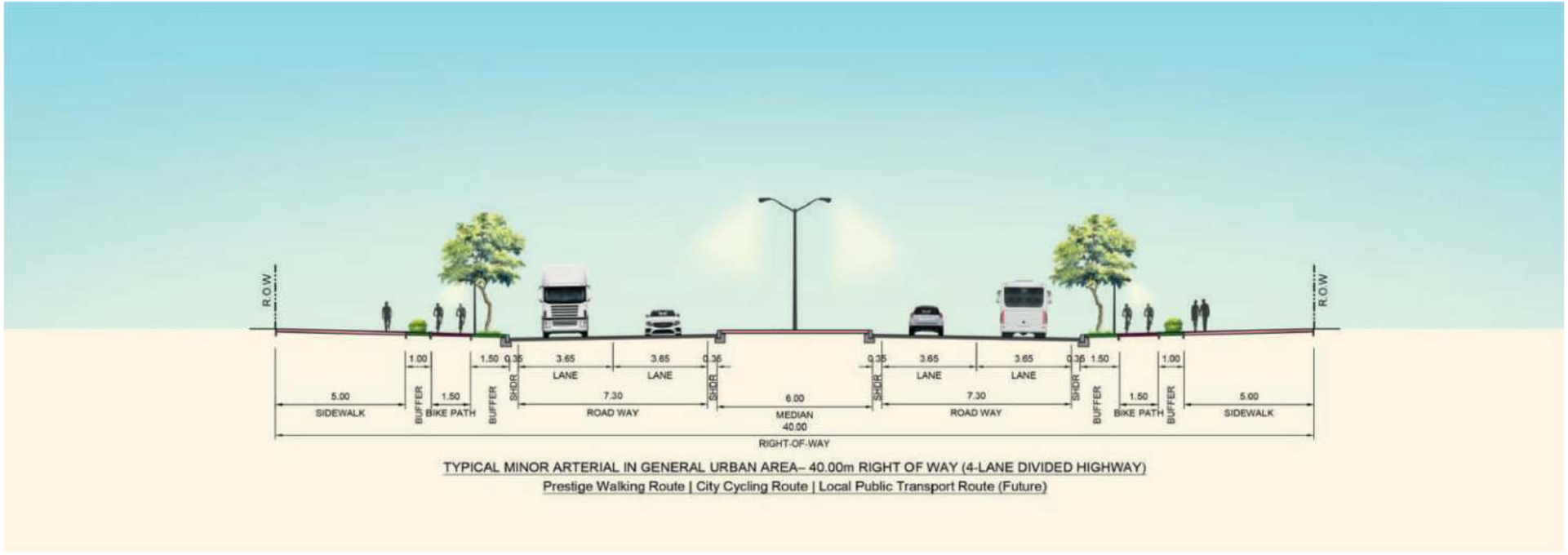

TYPICAL MINOR ARTERIAL IN GENERAL URBAN AREA– 40.00m RIGHT OF WAY (4-LANE DIVIDED HIGHWAY)
Prestige Walking Route | City Cycling Route | Local Public Transport Route (Future)

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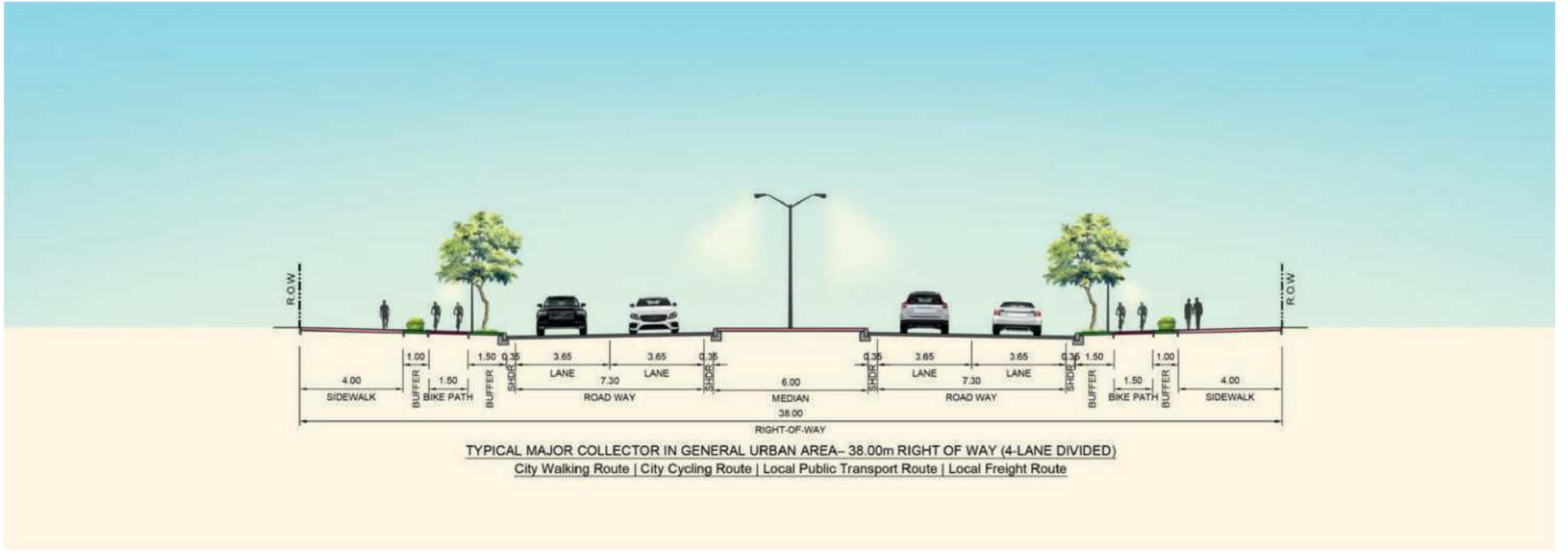
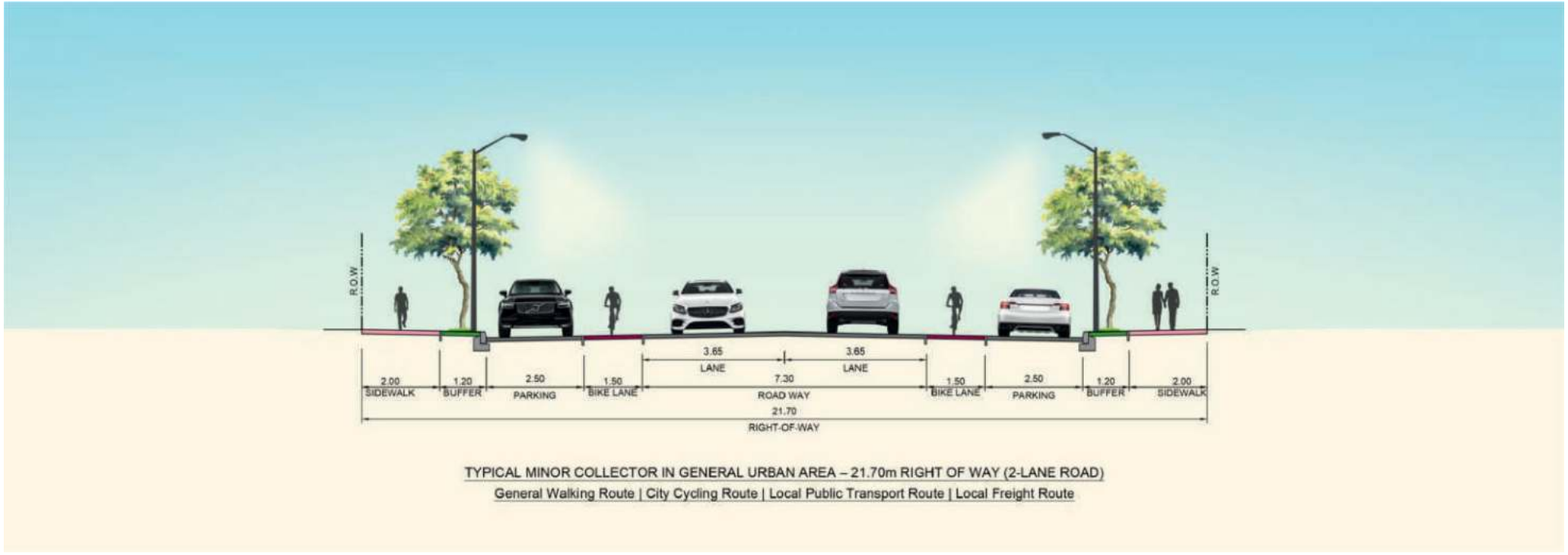
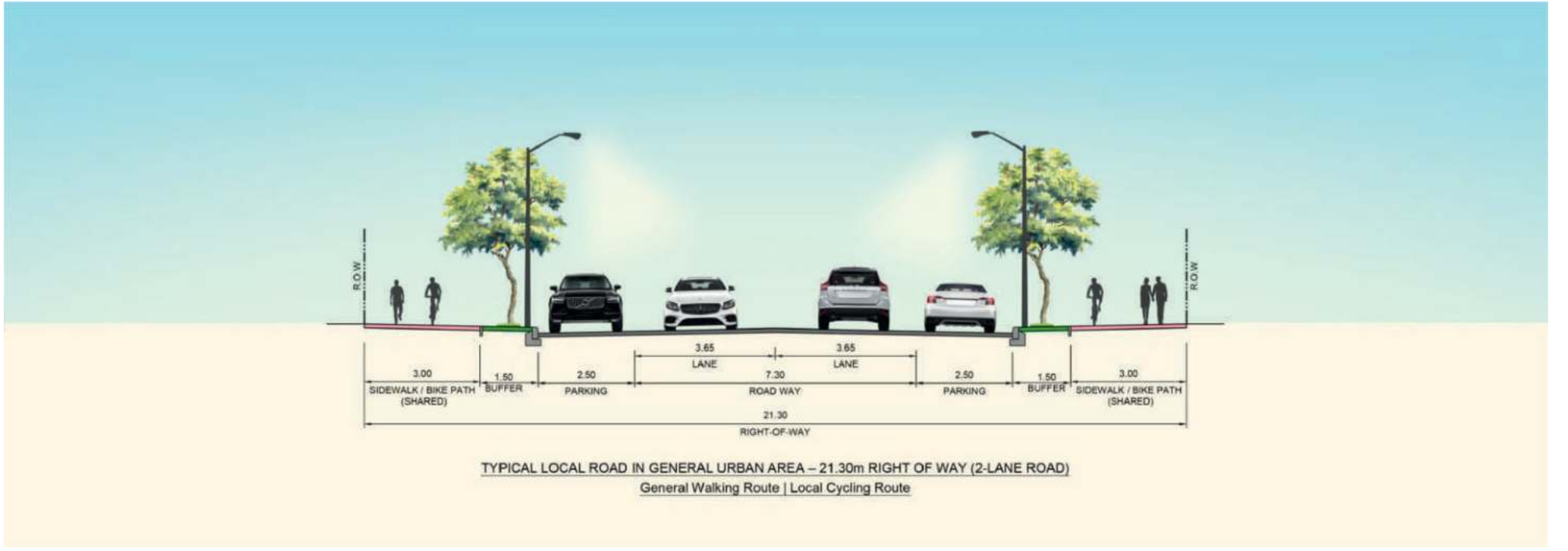


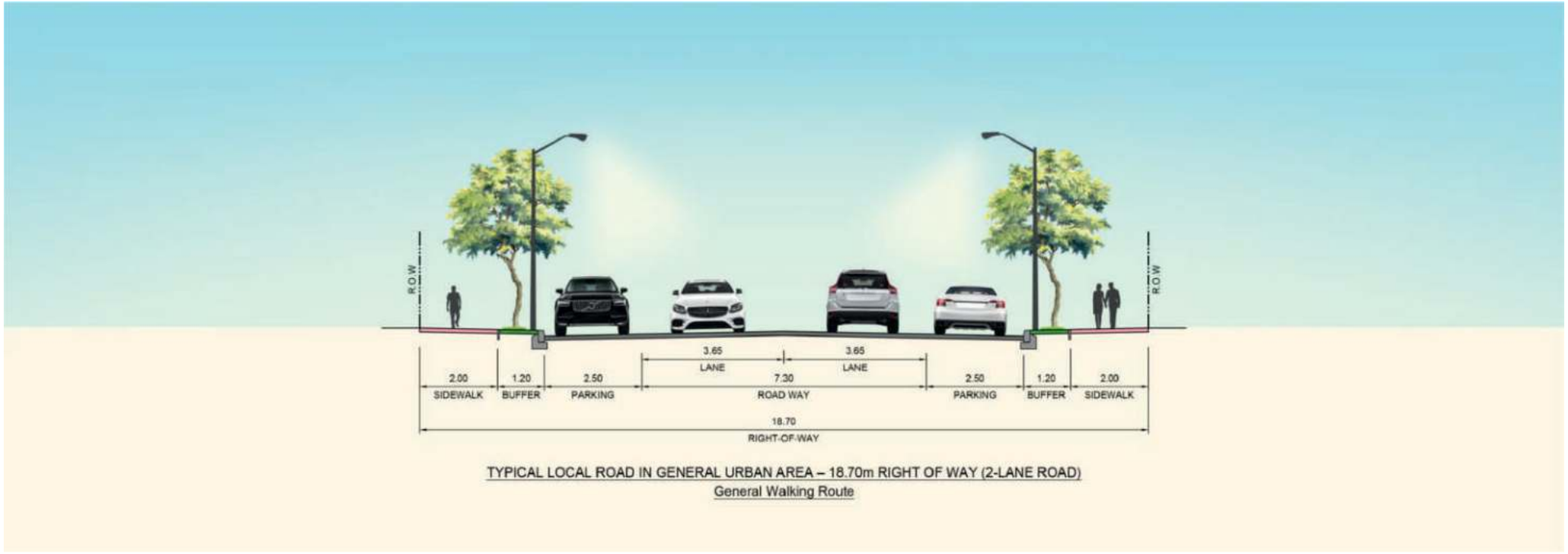
TYPICAL MAJOR COLLECTOR IN GENERAL URBAN AREA– 38.00m RIGHT OF WAY (4-LANE DIVIDED)
City Walking Route | City Cycling Route | Local Public Transport Route | Local Freight Route



TYPICAL MINOR COLLECTOR IN GENERAL URBAN AREA – 21.70m RIGHT OF WAY (2-LANE ROAD)
General Walking Route | City Cycling Route | Local Public Transport Route | Local Freight Route



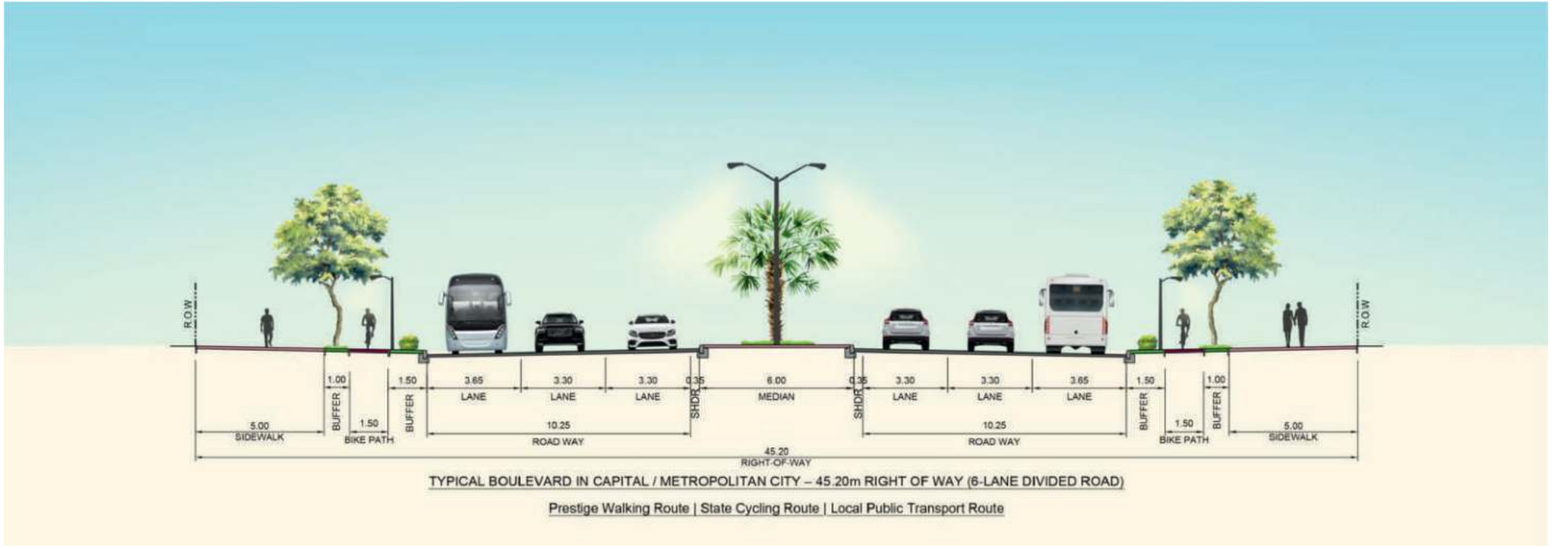
TYPICAL LOCAL ROAD IN GENERAL URBAN AREA – 21.30m RIGHT OF WAY (2-LANE ROAD)
General Walking Route | Local Cycling Route



TYPICAL LOCAL ROAD IN GENERAL URBAN AREA – 18.70m RIGHT OF WAY (2-LANE ROAD)
General Walking Route

C.2 ROADS WITHIN CAPITAL CITY AND METROPOLITAN CENTERS

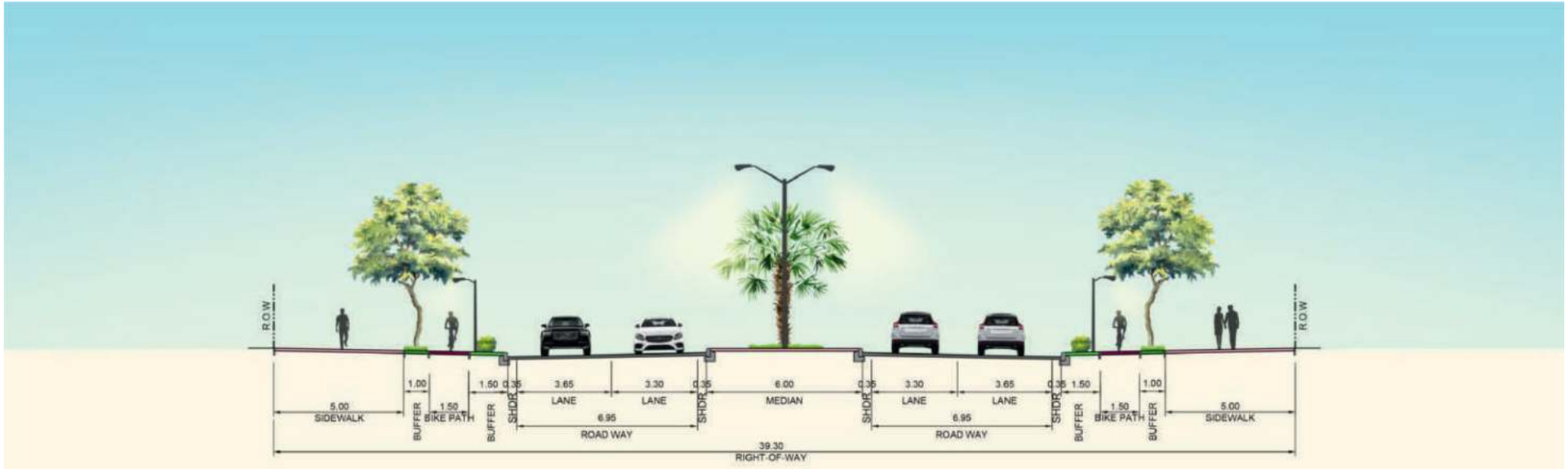
Note: The proposed standard values in these cross sections are for planning guidance only and shall not be used as a reference for road design purposes.



TYPICAL BOULEVARD IN CAPITAL / METROPOLITAN CITY – 45.20m RIGHT OF WAY (6-LANE DIVIDED ROAD)

Prestige Walking Route | State Cycling Route | Local Public Transport Route

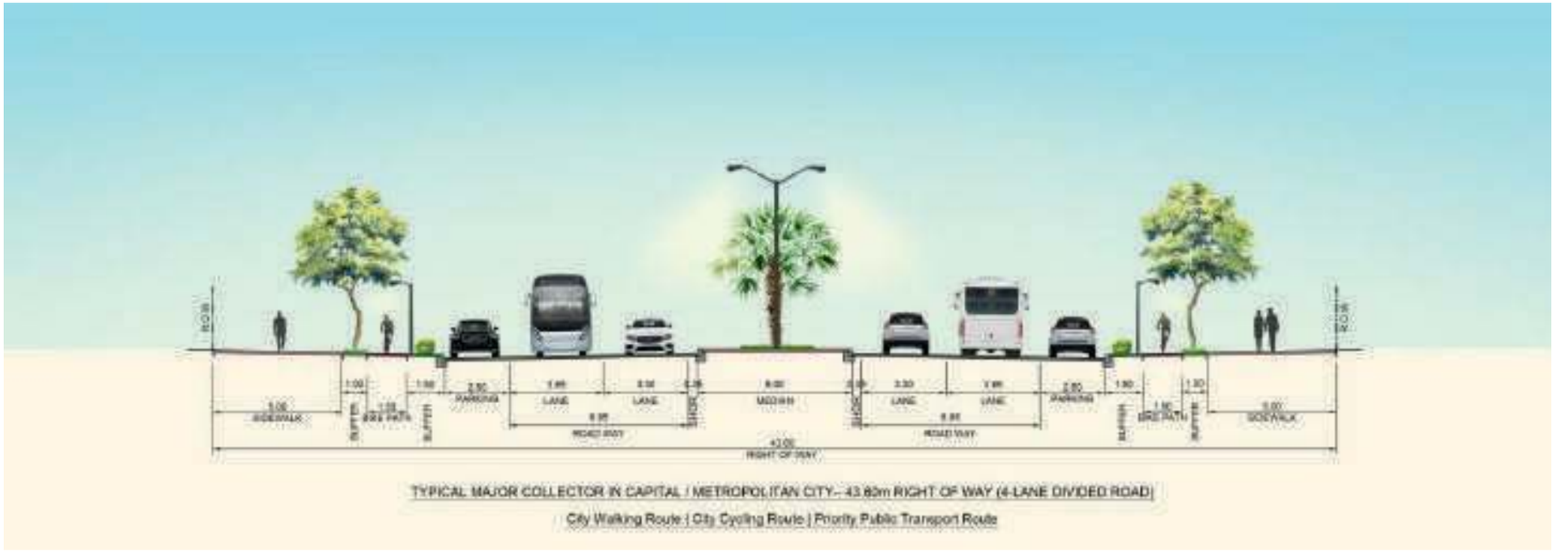
APPENDIX C



TYPICAL BOULEVARD IN CAPITAL / METROPOLITAN CITY – 39.30m RIGHT OF WAY (4-LANE DIVIDED ROAD)

Prestige Walking Route | City Cycling Route

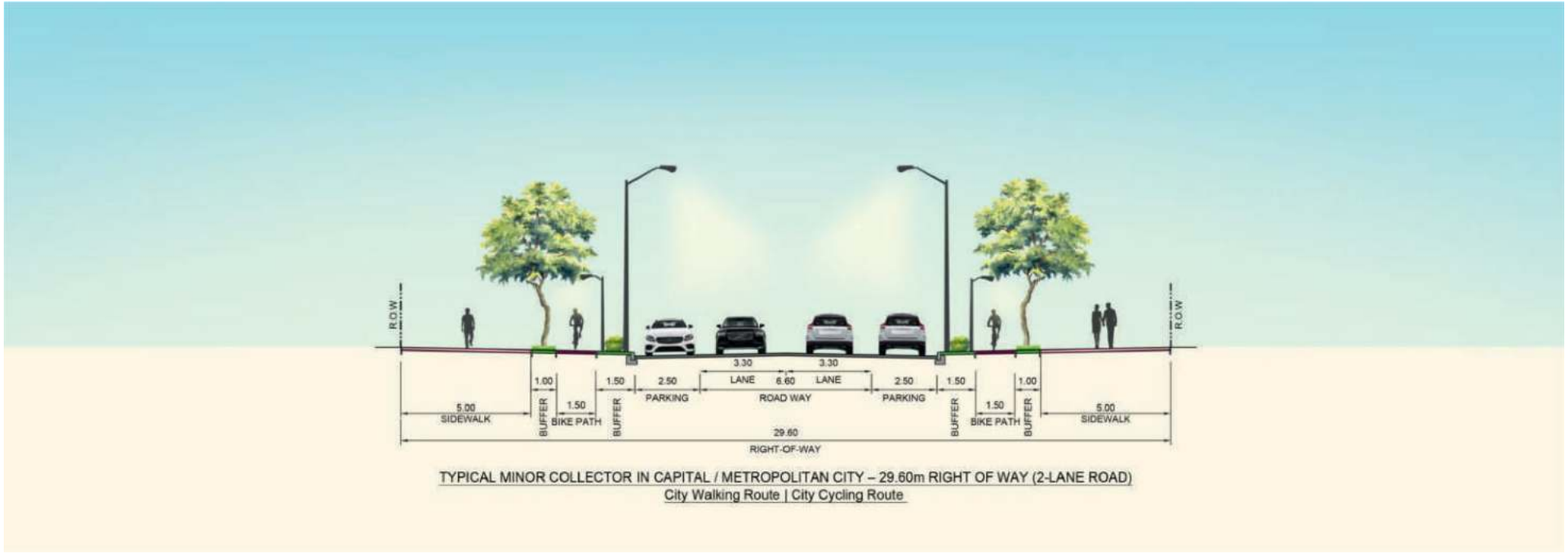
APPENDIX C



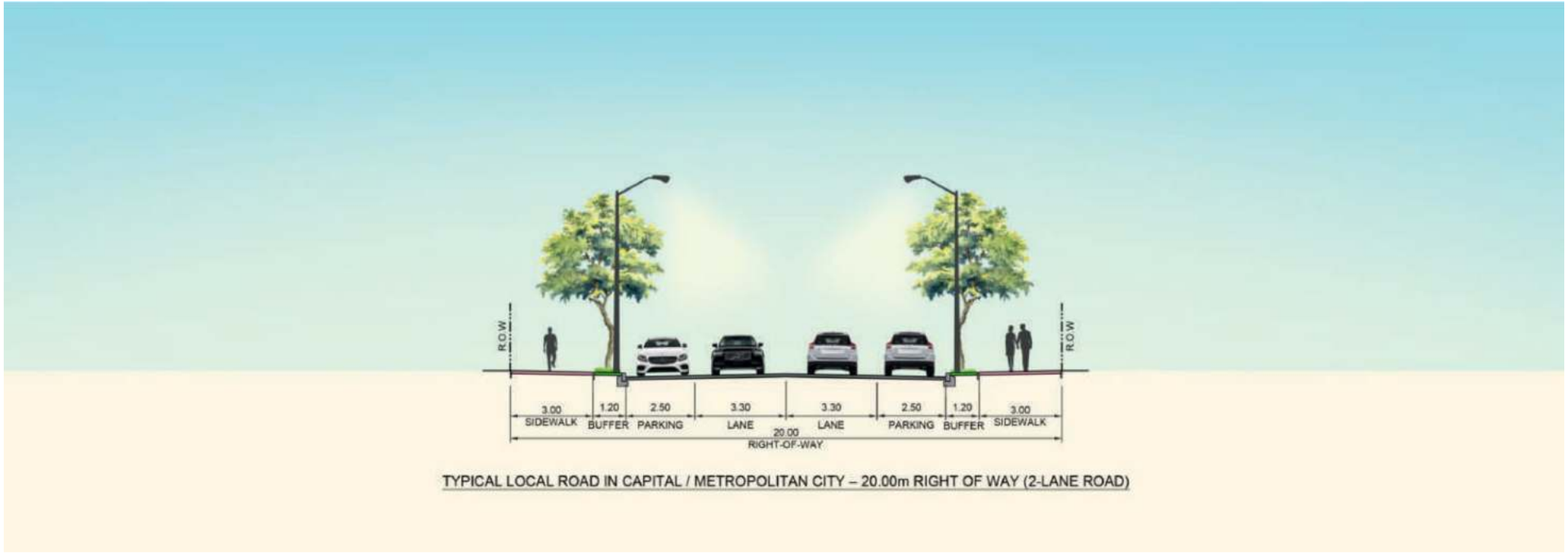
TYPICAL MAJOR COLLECTOR IN CAPITAL / METROPOLITAN CITY – 43.80m RIGHT OF WAY (4-LANE DIVIDED ROAD)

City Walking Route | City Cycling Route | Priority Public Transport Route

APPENDIX C



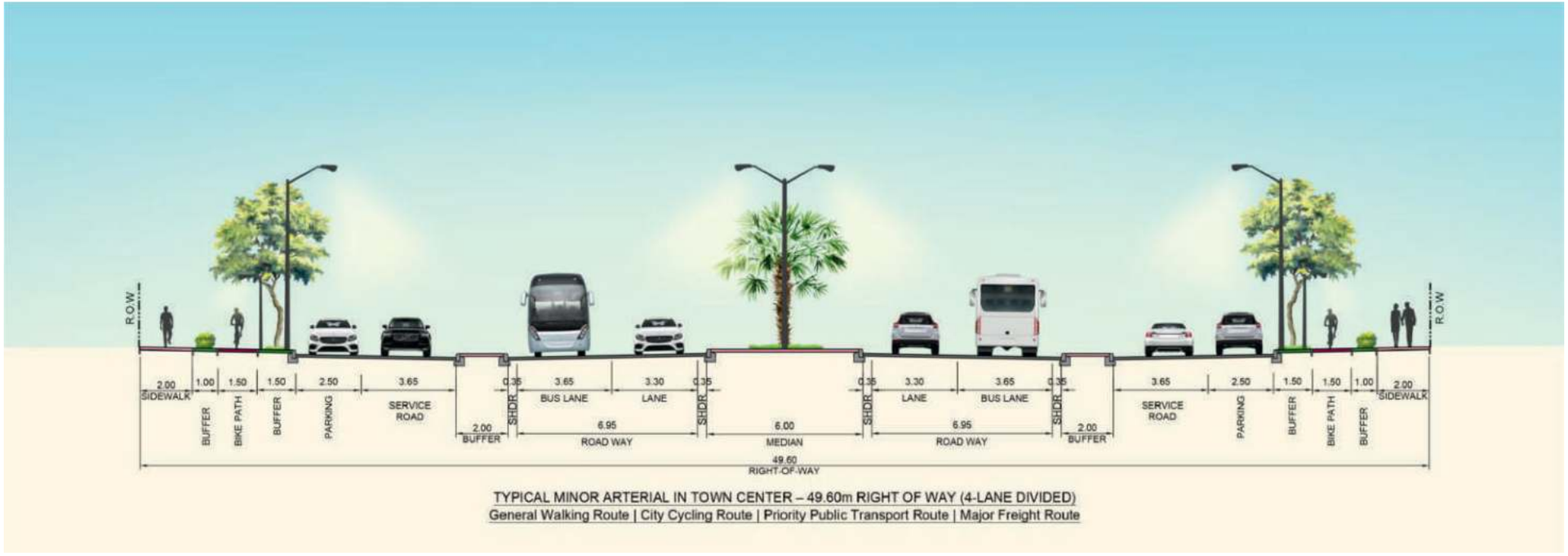
TYPICAL MINOR COLLECTOR IN CAPITAL / METROPOLITAN CITY – 29.60m RIGHT OF WAY (2-LANE ROAD)
City Walking Route | City Cycling Route



TYPICAL LOCAL ROAD IN CAPITAL / METROPOLITAN CITY – 20.00m RIGHT OF WAY (2-LANE ROAD)

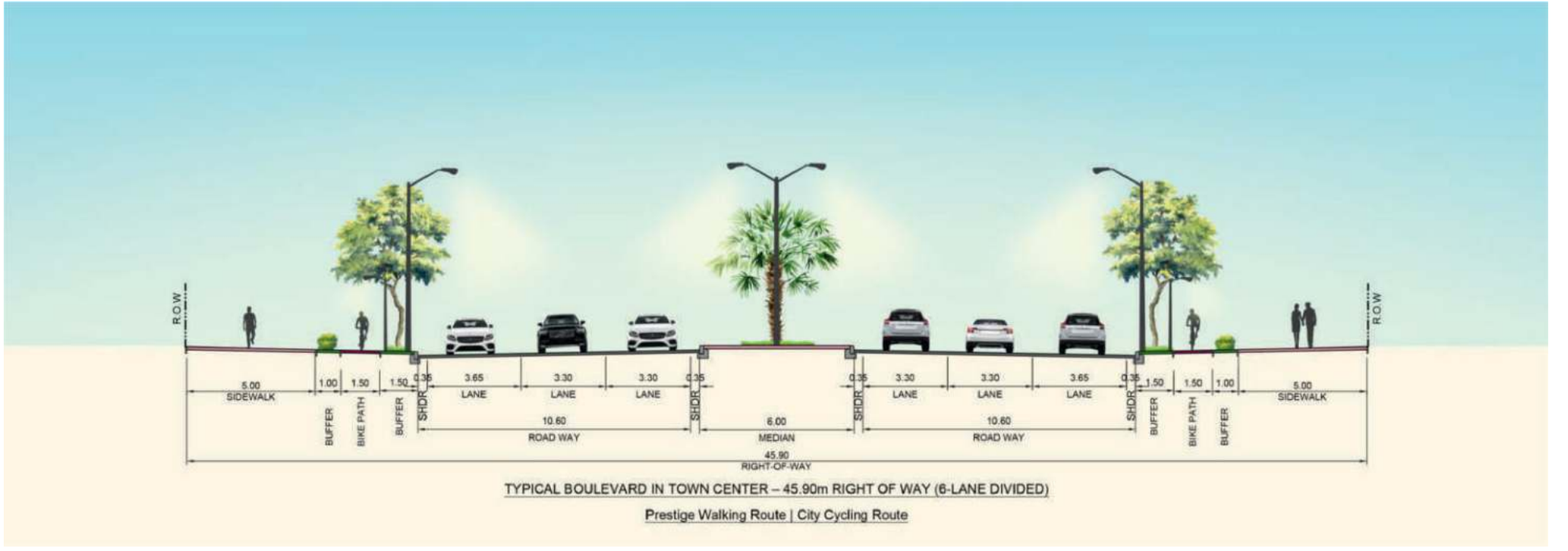
C.3 ROADS WITHIN TOWN CENTERS

Note: The proposed standard values in these cross sections are for planning guidance only and shall not be used as a reference for road design purposes.



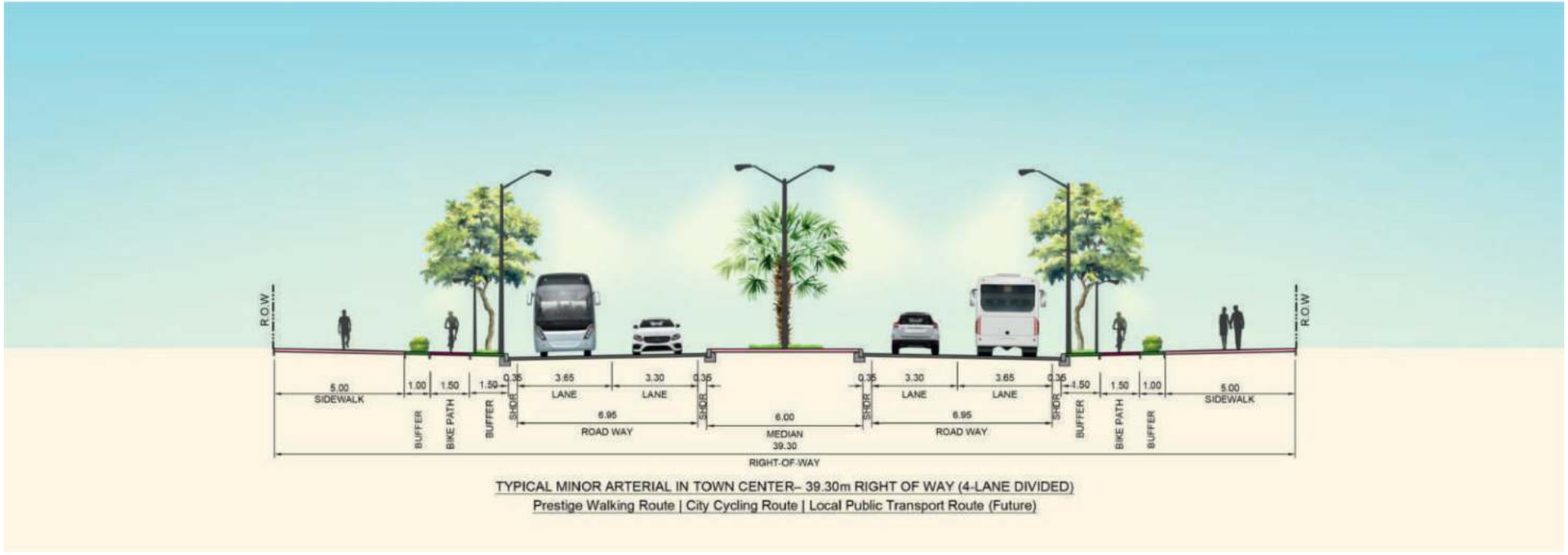
TYPICAL MINOR ARTERIAL IN TOWN CENTER – 49.60m RIGHT OF WAY (4-LANE DIVIDED)
General Walking Route | City Cycling Route | Priority Public Transport Route | Major Freight Route

APPENDIX C

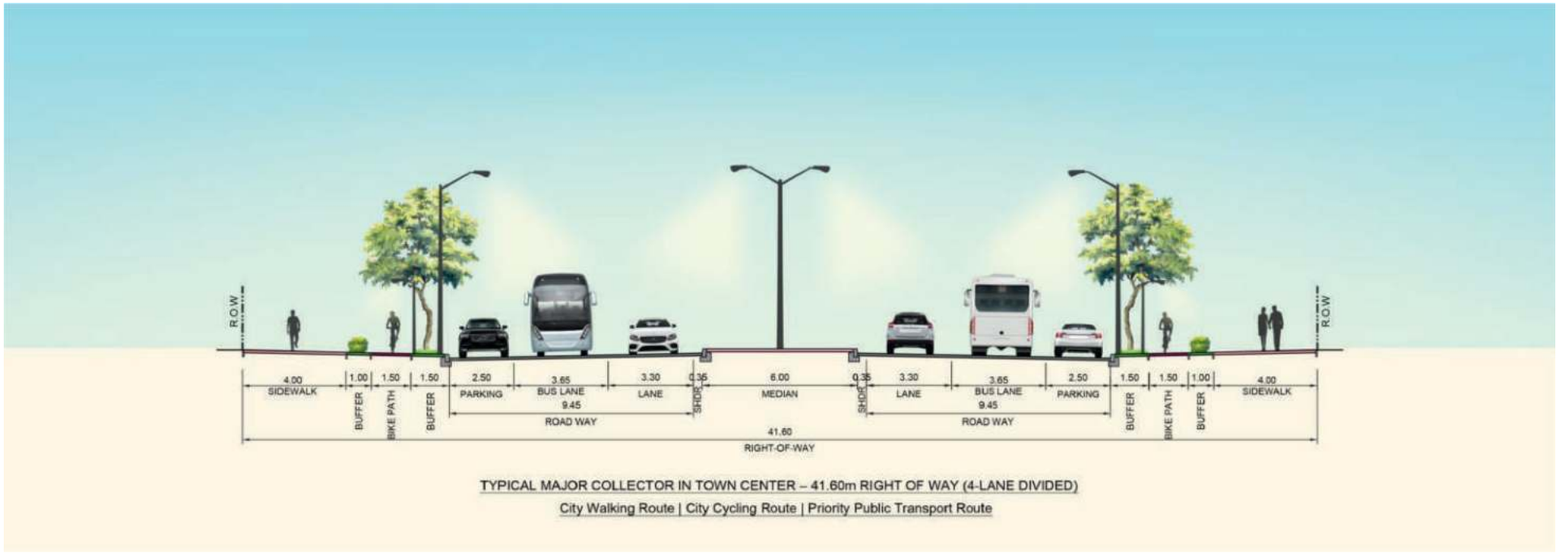


TYPICAL BOULEVARD IN TOWN CENTER – 45.90m RIGHT OF WAY (6-LANE DIVIDED)

Prestige Walking Route | City Cycling Route



TYPICAL MINOR ARTERIAL IN TOWN CENTER– 39.30m RIGHT OF WAY (4-LANE DIVIDED)
Prestige Walking Route | City Cycling Route | Local Public Transport Route (Future)

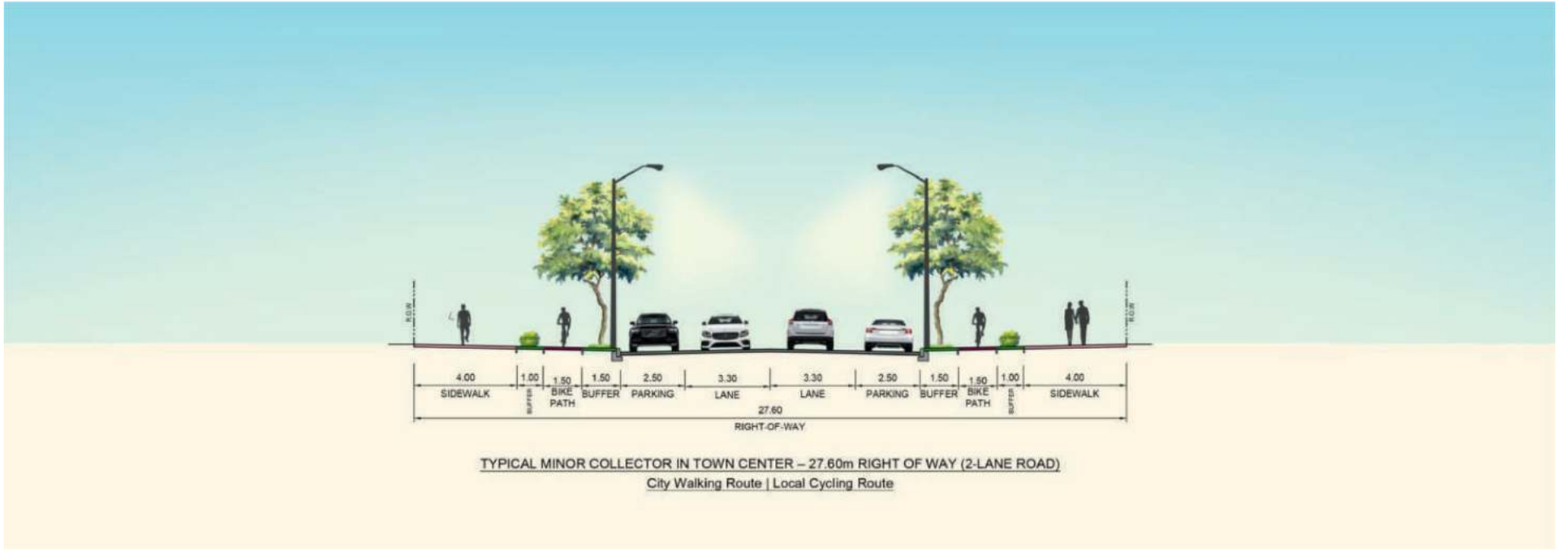


TYPICAL MAJOR COLLECTOR IN TOWN CENTER – 41.60m RIGHT OF WAY (4-LANE DIVIDED)

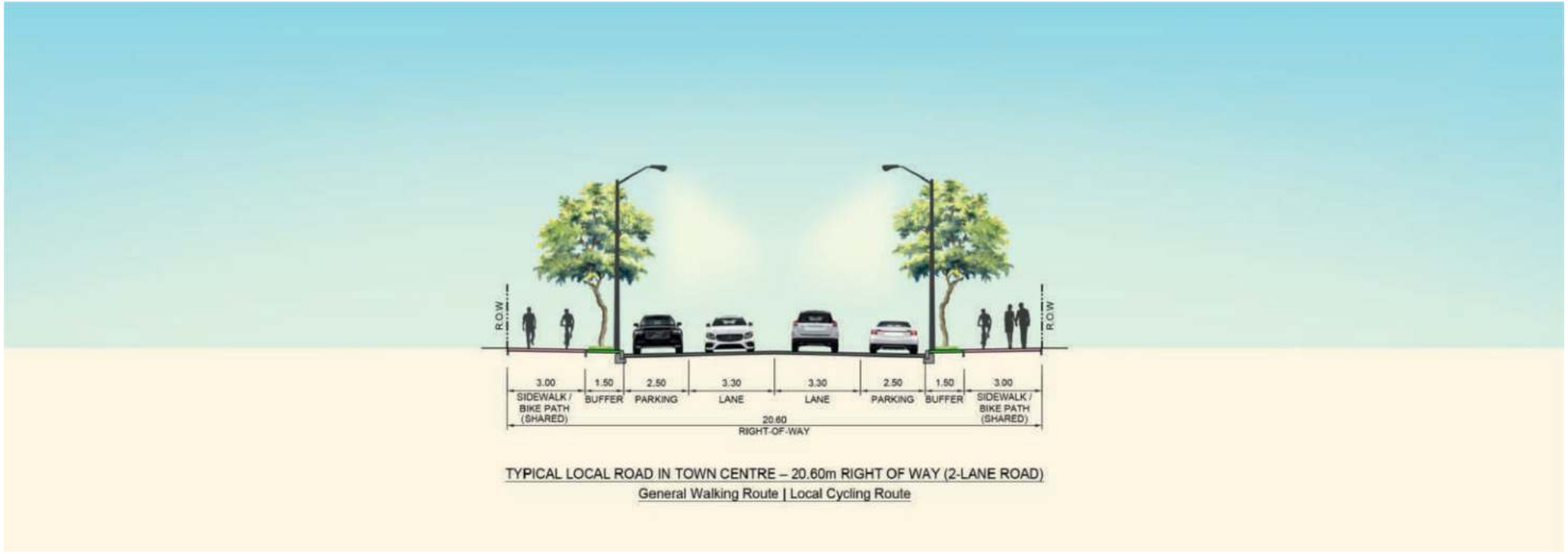
City Walking Route | City Cycling Route | Priority Public Transport Route

APPENDIX C

TYPICAL MINOR COLLECTOR IN TOWN CENTER – 25.00m RIGHT OF WAY (2-LANE ROAD)
City Walking Route | Local Cycling Route



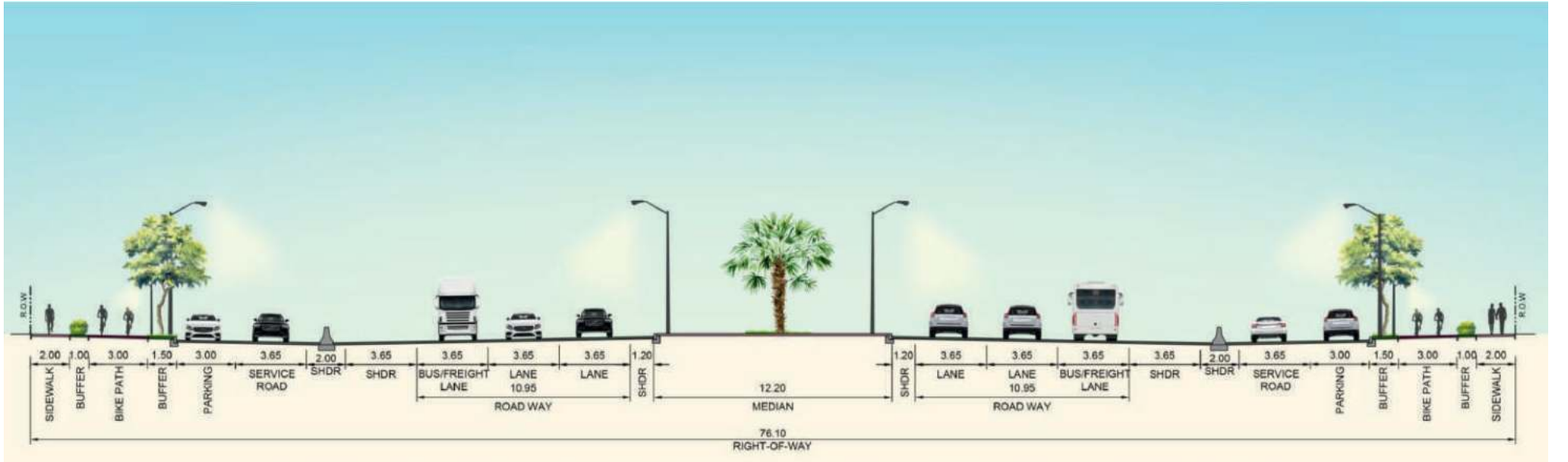
TYPICAL MINOR COLLECTOR IN TOWN CENTER – 27.60m RIGHT OF WAY (2-LANE ROAD)
City Walking Route | Local Cycling Route



TYPICAL LOCAL ROAD IN TOWN CENTRE – 20.60m RIGHT OF WAY (2-LANE ROAD)
General Walking Route | Local Cycling Route

C.4 ROADS WITHIN ECONOMIC ZONES AND INDUSTRIAL PRECINCTS

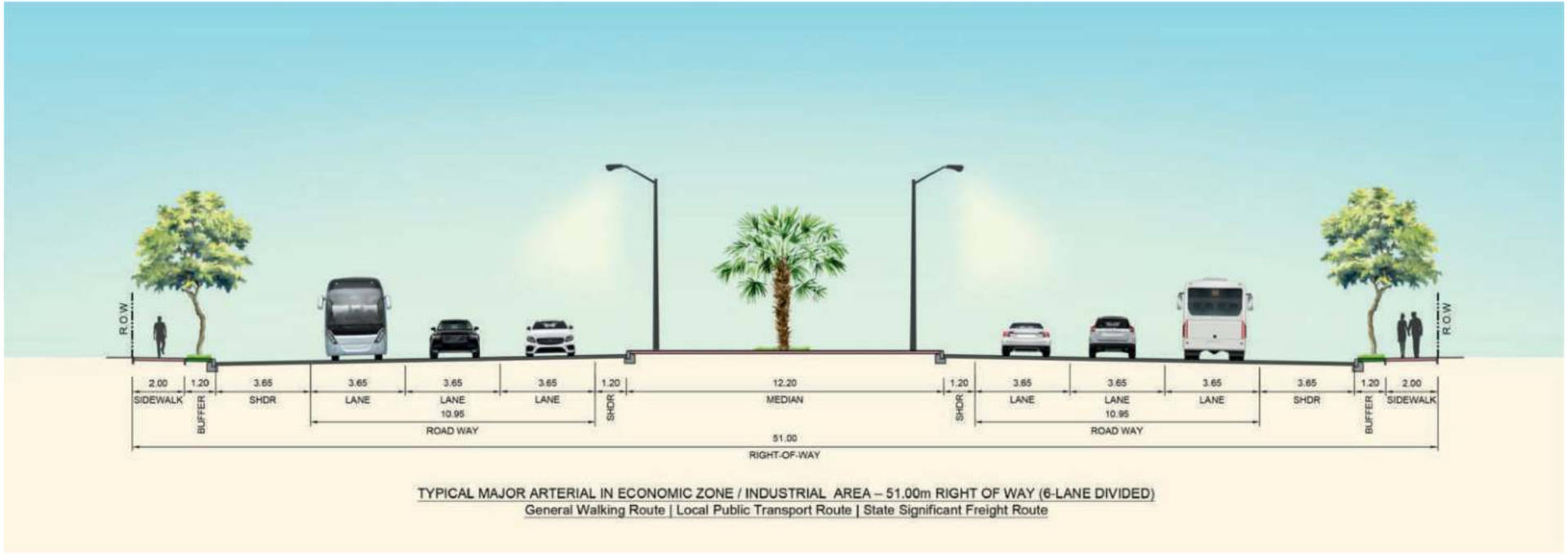
Note: The proposed standard values in these cross sections are for planning guidance only and shall not be used as a reference for road design purposes.



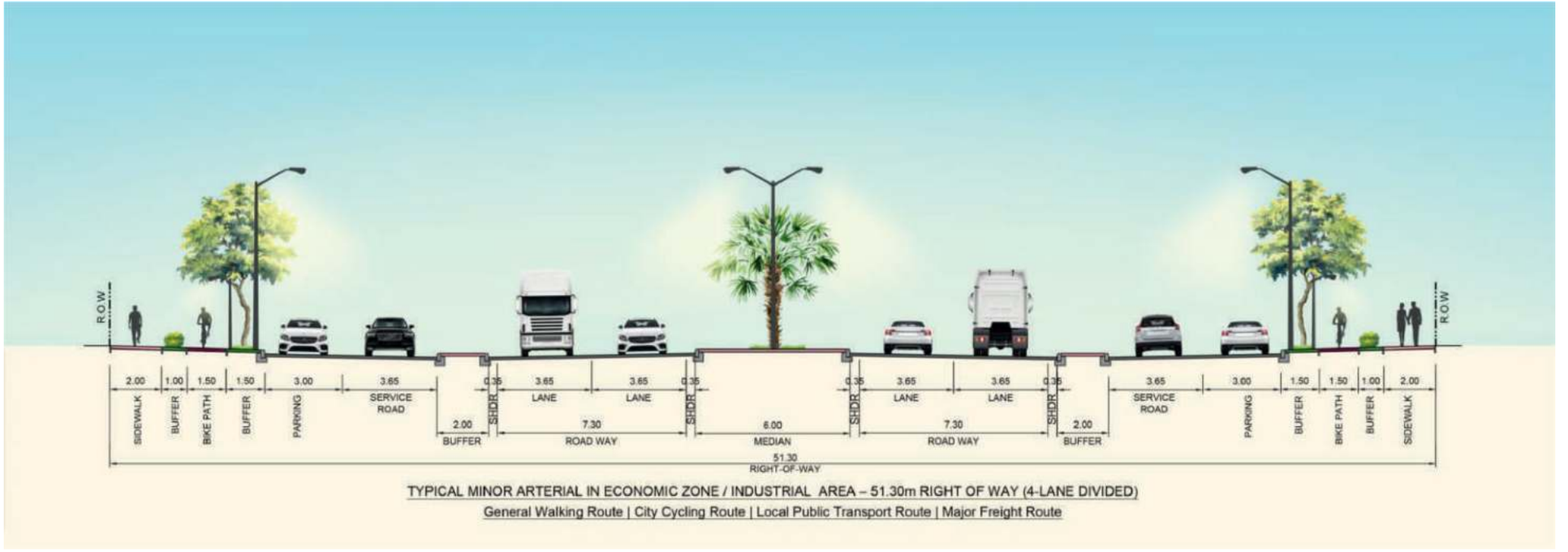
TYPICAL ARTERIAL IN ECONOMIC ZONE / INDUSTRIAL AREA ON PUBLIC TRANSPORT ROUTE – 76.10m RIGHT OF WAY (6-LANE DIVIDED)

General Walking Route | State Significant Cycle Route | Local Public Transport Route | State Significant Freight Route

APPENDIX C



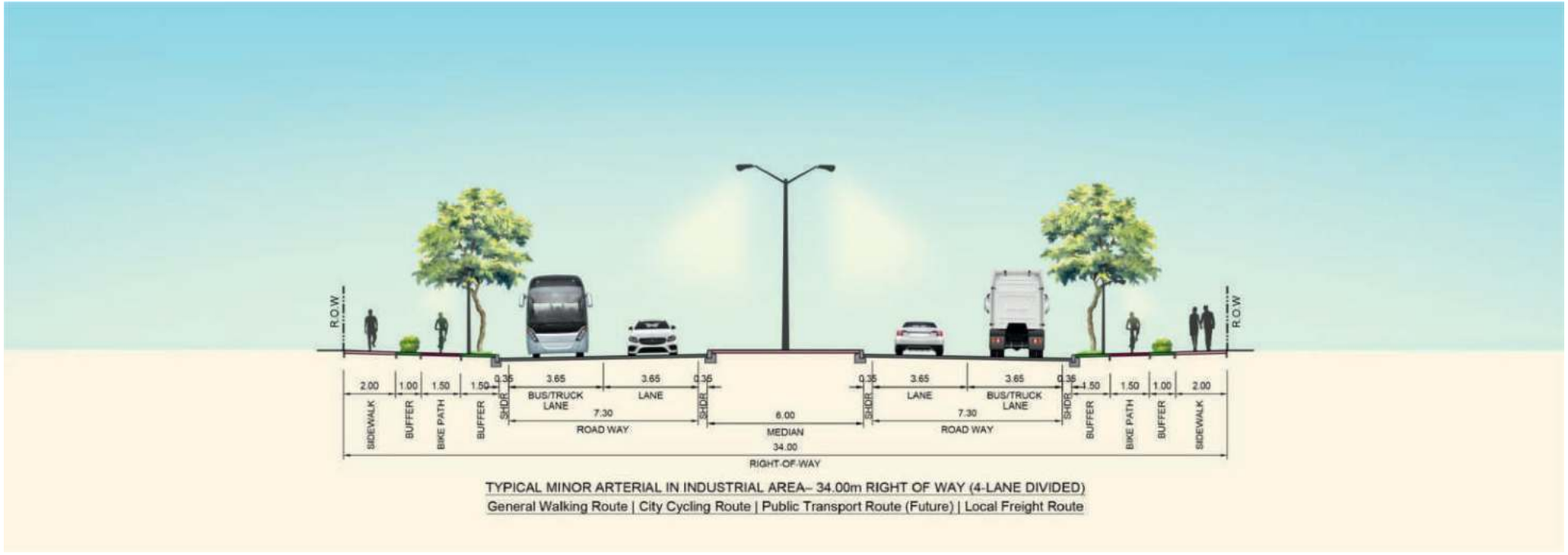
TYPICAL MAJOR ARTERIAL IN ECONOMIC ZONE / INDUSTRIAL AREA – 51.00m RIGHT OF WAY (6-LANE DIVIDED)
General Walking Route | Local Public Transport Route | State Significant Freight Route



TYPICAL MINOR ARTERIAL IN ECONOMIC ZONE / INDUSTRIAL AREA – 51.30m RIGHT OF WAY (4-LANE DIVIDED)

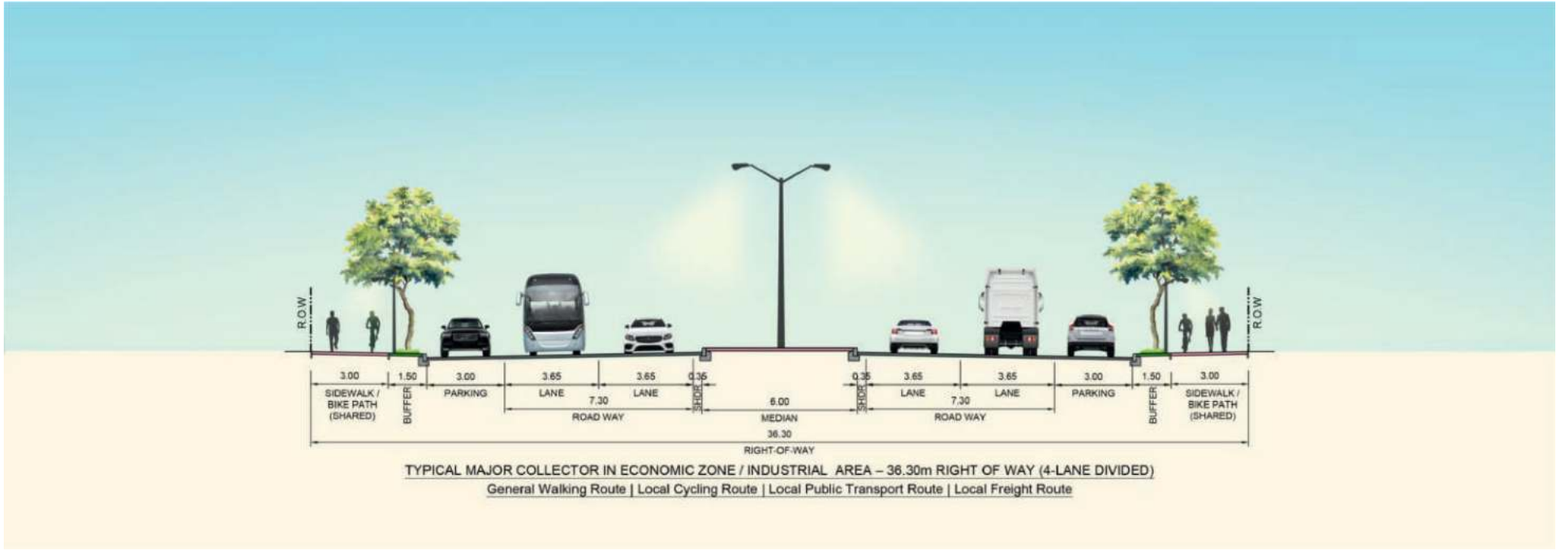
General Walking Route | City Cycling Route | Local Public Transport Route | Major Freight Route

APPENDIX C



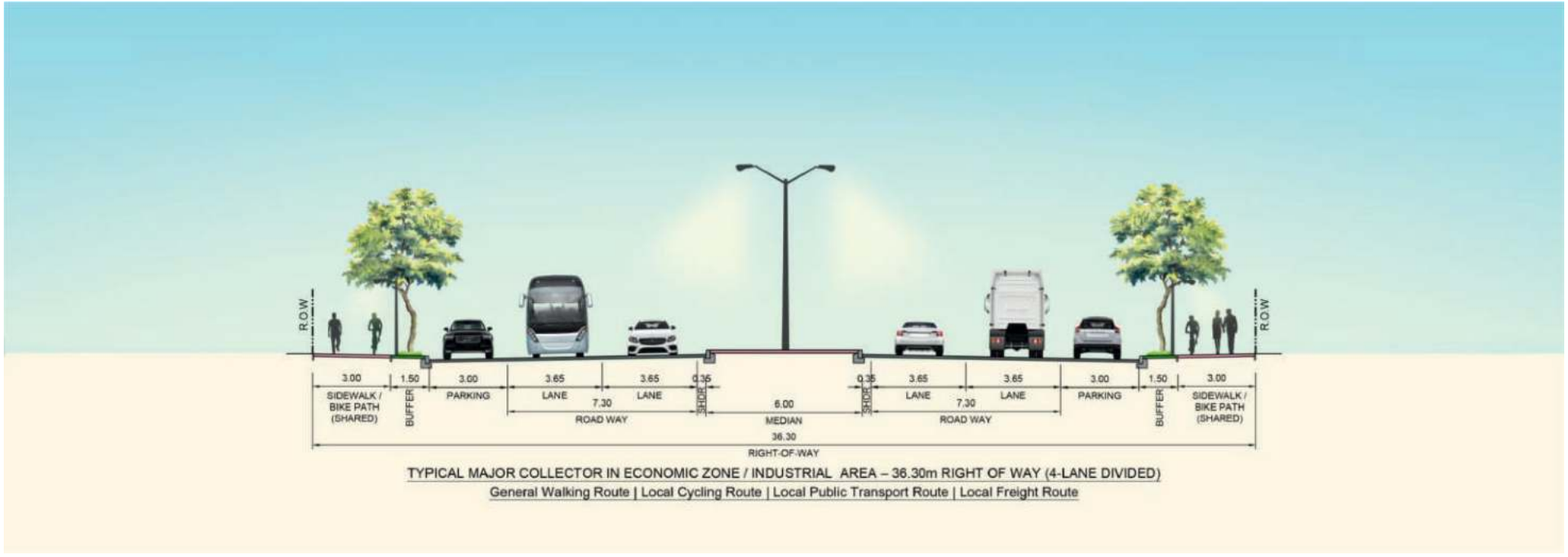
TYPICAL MINOR ARTERIAL IN INDUSTRIAL AREA– 34.00m RIGHT OF WAY (4-LANE DIVIDED)
General Walking Route | City Cycling Route | Public Transport Route (Future) | Local Freight Route

APPENDIX C



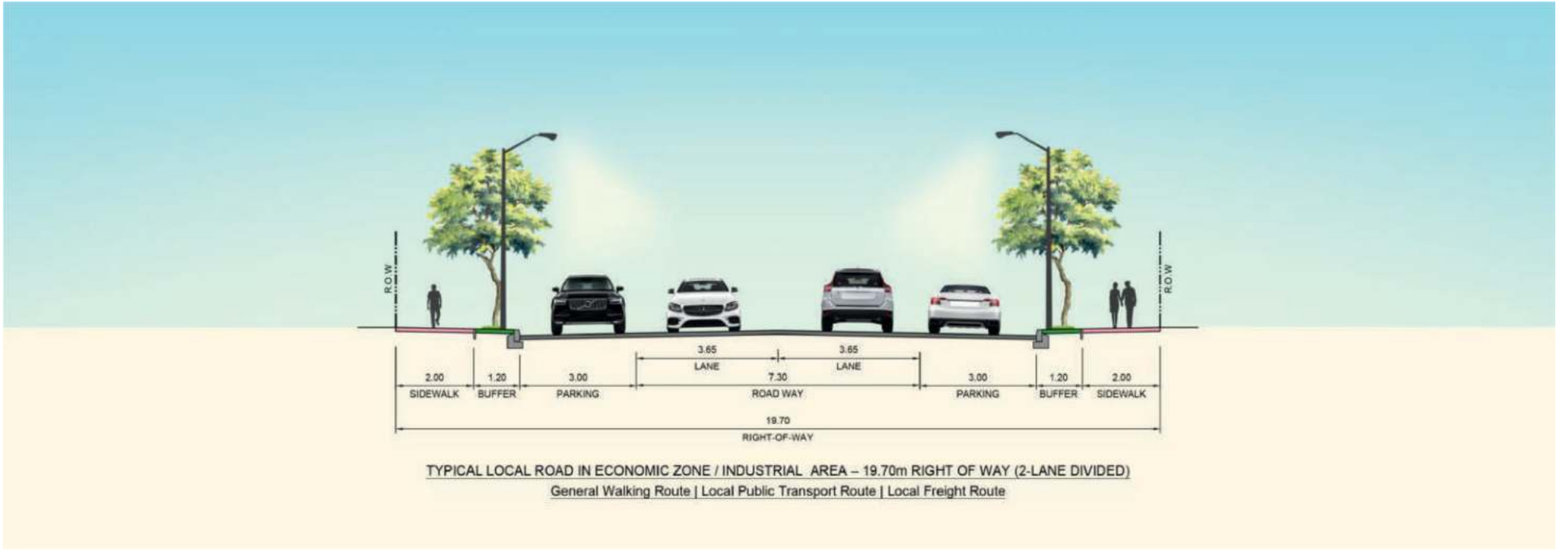
TYPICAL MAJOR COLLECTOR IN ECONOMIC ZONE / INDUSTRIAL AREA – 36.30m RIGHT OF WAY (4-LANE DIVIDED)

General Walking Route | Local Cycling Route | Local Public Transport Route | Local Freight Route



TYPICAL MAJOR COLLECTOR IN ECONOMIC ZONE / INDUSTRIAL AREA – 36.30m RIGHT OF WAY (4-LANE DIVIDED)

General Walking Route | Local Cycling Route | Local Public Transport Route | Local Freight Route



TYPICAL LOCAL ROAD IN ECONOMIC ZONE / INDUSTRIAL AREA – 19.70m RIGHT OF WAY (2-LANE DIVIDED)

General Walking Route | Local Public Transport Route | Local Freight Route

C.5 CROSS SECTION LIST

	Stage 1 - Road Typology									Stage 2 - Mode Specific													Stage 3 - Context Specific							
											Walking			Cycling			Public Transport			Freight										
Label	Urban	Rural	Expressway (R1)	Arterial (R2)	Collector (R3)	Local (R4)	Low Volume	Average Volume	High Volume	No specific	Prestige (W1)	City (W2)	General	State (C1)	City (C2)	Local (C3)	Dedicated (P1)	Priority (P2)	Local (P3)	State (F1)	Major (F2)	Local (F3)	No Specific	Capital City / Met Centre	Town Center	Economic / Industrial	Service Road / Frontage Road	Parking	Cross Section Width	Rounded Up Cross Section Width	Cross Section Specific Notes
Expressway																														
R1+Wlk(General)	X		X				N/A	N/A	N/A				X			N/A			N/A			N/A	X	N/A	N/A	N/A		Pro	59.9	60	
R1+Wlk(General)+C1	X		X				N/A	N/A	N/A				X	X		N/A			N/A			N/A	X	N/A	N/A	N/A		Pro	67.9	68	
R1+Wlk(General)+C1+P1	X		X				N/A	N/A	N/A				X	X		N/A	X		N/A			N/A	X	N/A	N/A	N/A		Pro	80.9	81	
R1+F1	X		X				N/A	N/A	N/A							N/A			N/A	X		N/A	X	N/A	N/A	N/A		Pro	49.2	50	
R1+Wlk(General)+F1	X		X				N/A	N/A	N/A				X			N/A			N/A	X		N/A	X	N/A	N/A	N/A		Pro	61.2	62	
R1+Wlk(General)+C1+F1	X		X				N/A	N/A	N/A				X	X		N/A			N/A	X		N/A	X	N/A	N/A	N/A		Pro	69.2	70	
R1+Wlk(General)+P1+F1	X		X				N/A	N/A	N/A				X			N/A	X		N/A	X		N/A	X	N/A	N/A	N/A		Pro	74.2	75	
R1+Wlk(General)+C1+P1+F1	X		X				N/A	N/A	N/A				X	X		N/A	X		N/A	X		N/A	X	N/A	N/A	N/A		Pro	82.2	83	
R1+Wlk(General)	X		X				N/A	N/A	N/A				X			N/A			N/A			N/A	X	N/A	N/A	N/A	FR	Pro	113.8	112	
R1+Wlk(General)+C1	X		X				N/A	N/A	N/A				X	X		N/A			N/A			N/A	X	N/A	N/A	N/A	FR	Pro	119.8	120	Cross sections include frontage road. It is assumed there is 15m separator between frontage road and expressway. Each frontage road is assumed to have 3 lanes in each direction
R1+Wlk(General)+C1+P1	X		X				N/A	N/A	N/A				X	X		N/A	X		N/A			N/A	X	N/A	N/A	N/A	FR	Pro	132.8	133	
R1+F1	X		X				N/A	N/A	N/A							N/A			N/A	X		N/A	X	N/A	N/A	N/A	FR	Pro	101.1	102	
R1+Wlk(General)+F1	X		X				N/A	N/A	N/A				X			N/A			N/A	X		N/A	X	N/A	N/A	N/A	FR	Pro	113.1	114	
R1+Wlk(General)+C1+F1	X		X				N/A	N/A	N/A				X	X		N/A			N/A	X		N/A	X	N/A	N/A	N/A	FR	Pro	121.1	122	
R1+Wlk(General)+P1+F1	X		X				N/A	N/A	N/A				X			N/A	X		N/A	X		N/A	X	N/A	N/A	N/A	FR	Pro	126.1	127	
R1+Wlk(General)+C1+P1+F1	X		X				N/A	N/A	N/A				X	X		N/A	X		N/A	X		N/A	X	N/A	N/A	N/A	FR	Pro	134.1	135	
Arterial																														
							Boulevard	Minor	Major (Mjr)																					
R2+Mjr+W1	X			X					X		X					N/A			N/A			N/A	X					Pro	69.8	84	
R2+Mjr+W2	X			X					X			X				N/A			N/A			N/A	X					Pro	61.8	62	
R2+Mjr+Wlk(General)	X			X									X			N/A			N/A			N/A	X					Pro	56.2	57	
R2+Mjr+W1+C1	X			X					X		X			X		N/A			N/A			N/A	X					Pro	68.8	69	
R2+Mjr+W1+C1+P1	X			X					X		X			X		N/A	X		N/A			N/A	X					Pro	74.6	75	
R2+Mjr+W1+C1+P2	X			X					X		X			X		N/A		X	N/A			N/A	X					Pro	78.1	79	
R2+Mjr+W1+C1+P3	X			X					X		X			X		N/A			X			N/A	X					Pro	70.8	71	
R2+Mjr+W2+C1	X			X					X			X		X		N/A			N/A			N/A	X					Pro	68.8	69	
R2+Mjr+W2+C1+P1	X			X					X			X		X		N/A	X		N/A			N/A	X					Pro	72.6	73	
R2+Mjr+W2+C1+P2	X			X					X			X		X		N/A		X	N/A			N/A	X					Pro	76.1	77	
R2+Mjr+W2+C1+P3	X			X					X			X		X		N/A			X			N/A	X					Pro	68.8	69	
R2+Mjr+Walk(Other)+C1	X			X					X				X	X		N/A			N/A			N/A	X					Pro	64.8	65	
R2+Mjr+Walk(Other)+C1+P1	X			X					X				X	X		N/A	X		N/A			N/A	X					Pro	68.6	69	
R2+Mjr+Walk(Other)+C1+P2	X			X					X				X	X		N/A		X	N/A			N/A	X					Pro	72.1	73	
R2+Mjr+Walk(Other)+C1+P3	X			X					X				X	X		N/A			X			N/A	X					Pro	64.8	65	
R2+Mjr+Walk(Other)+C1+P1+F1	X			X					X				X	X		N/A	X		N/A	X		N/A	X					Pro	68.6	69	
R2+Mjr+Walk(Other)+C1+P2+F1	X			X					X				X	X		N/A		X	N/A	X		N/A	X					Pro	72.1	73	
R2+Mjr+Walk(Other)+C1+P3+F1	X			X					X				X	X		N/A			X	X		N/A	X					Pro	64.8	65	
R2+Mjr+W1+C1+P1+F1	X			X					X		X			X		N/A	X		N/A	X		N/A	X					Pro	74.6	75	
R2+Mjr+W1+C1+P1+F2	X			X					X		X			X		N/A	X		N/A	X		N/A	X					Pro	74.6	75	
R2+Mjr+W1+C1+P1+F3	X			X					X		X			X		N/A	X		N/A	X		N/A	X					Pro	78.1	79	
R2+Mjr+W1+C1+P1+F4	X			X					X		X			X		N/A	X		N/A	X		N/A	X					Pro	70.8	71	
R2+Mjr+W2+C2	X			X					X						X	N/A			N/A			N/A	X					Pro	68.8	69	
R2+Mjr+W1+C2+P1	X			X					X		X				X	N/A	X		N/A			N/A	X					Pro	74.6	75	
R2+Mjr+W1+C2+P2	X			X					X		X				X	N/A		X	N/A			N/A	X					Pro	78.1	79	
R2+Mjr+W1+C2+P3	X			X					X		X				X	N/A			X			N/A	X					Pro	70.8	71	
R2+Mjr+W2+C2	X			X					X			X			X	N/A			N/A			N/A	X					Pro	68.8	69	
R2+Mjr+W1+C2+P1	X			X					X			X			X	N/A	X		N/A			N/A	X					Pro	74.6	75	
R2+Mjr+W2+C2+P2	X			X					X			X			X	N/A		X	N/A			N/A	X					Pro	78.1	79	
R2+Mjr+W2+C2+P3	X			X					X			X			X	N/A			X			N/A	X					Pro	70.8	71	
R2+Mjr+Walk(Other)+C2	X			X					X				X		X	N/A			N/A			N/A	X					Pro	64.8	65	
R2+Mjr+Walk(Other)+C2+P1	X			X					X				X		X	N/A	X		N/A			N/A	X					Pro	68.6	69	
R2+Mjr+Walk(Other)+C2+P2	X			X					X				X		X	N/A		X	N/A			N/A	X					Pro	72.1	73	
R2+Mjr+Walk(Other)+C2+P3	X			X					X				X		X	N/A			X			N/A	X					Pro	64.8	65	
R2+Mjr+Walk(Other)+C2+P1+F2	X			X					X				X		X	N/A	X		N/A	X		N/A	X					Pro	68.6	69	
R2+Mjr+Walk(Other)+C2+P2+F2	X			X					X				X		X	N/A		X	N/A	X		N/A	X					Pro	72.1	73	
R2+Mjr+Walk(Other)+C2+P3+F2	X			X					X				X		X	N/A			X	X		N/A	X					Pro	64.8	65	
R2+Mjr+W1+C2+P1+F2	X			X					X		X				X	N/A	X		N/A	X		N/A	X					Pro	74.6	75	
R2+Mjr+W2+C2+P2+F2	X			X					X		X				X	N/A		X	N/A	X		N/A	X					Pro	78.1	79	
R2+Mjr+W1+C2+P3+F2	X			X					X		X				X	N/A			X	X		N/A	X					Pro	70.8	71	
R2+Mjr+W1	X			X					X		X					N/A			N/A			N/A	X				SR	Pro	82.4	83	Service Road assumes 2m median between service road and Arterial. Service Road assumes 2 lanes in each direction - lane width 3.65
R2+Mjr+W2	X			X					X			X				N/A			N/A			N/A	X				SR	Pro	80.4	81	
R2+Mjr+Wlk(General)	X			X					X				X			N/A			N/A			N/A	X				SR	Pro	74.8	75	
R2+Mjr+W1+C1	X			X					X		X			X		N/A			N/A			N/A	X				SR	Pro	87.4	88	
R2+Mjr+W1+C1+P1	X			X					X		X			X		N/A	X		N/A			N/A	X				SR	Pro	93.2	94	
R2+Mjr+W1+C1+P2	X			X					X		X			X		N/A		X	N/A			N/A	X				SR	Pro	96.7	97	
R2+Mjr+W1+C1+P3	X			X					X		X			X		N/A			X			N/A	X				SR	Pro	89.4	90	
R2+Mjr+W2+C1	X			X					X			X		X		N/A			N/A			N/A	X				SR	Pro	87.4	88	
R2+Mjr+W2+C1+P1	X			X					X			X		X		N/A	X		N/A			N/A	X				SR	Pro	93.2	92	
R2+Mjr+W2+C1+P2	X			X					X			X		X		N/A		X	N/A			N/A	X				SR	Pro	96.7	95	
R2+Mjr+W2+C1+P3	X			X					X			X		X		N/A			X			N/A	X				SR	Pro	87.4	88	
R2+Mjr+Walk(Other)+C1	X			X					X				X	X		N/A			N/A			N/A	X				SR	Pro	83.4	84	
R2+Mjr+Walk(Other)+C1+P1	X			X					X				X	X		N/A	X		N/A			N/A	X				SR	Pro	87.2	88	
R2+Mjr+Walk(Other)+C1+P2	X			X					X				X	X		N/A		X	N/A			N/A	X				SR	Pro	90.7	91	
R2+Mjr+Walk(Other)+C1+P3	X			X					X				X	X		N/A			X			N/A	X				SR	Pro	83.4	84	
R2+Mjr+Walk(Other)+C1+P1+F2	X			X					X				X	X		N/A	X		N/A		X	N/A	X				SR	Pro	87.2	88	
R2+Mjr+Walk(Other)+C1+P2+F2	X			X					X				X	X		N/A		X	N/A	X		N/A	X				SR	Pro	90.7	91	
R2+Mjr+Walk(Other)+C1+P3+F2	X			X					X				X	X		N/A			X	X		N/A	X				SR	Pro	88.4	89	

APPENDIX C

Label	Stage 1 - Road Typology									Stage 2 - Mode Specific												Stage 3 - Context Specific				Service Road / Frontage Road	Parking	Cross Section Width	Rounded Up Cross Section Width	Cross Section Specific Notes
	Urban	Rural	Expressway (R1)	Arterial (R2)	Collector (R3)	Local (R4)	Low Volume	Average Volume	High Volume	No specific	Walking: Prestige (W1)	Walking: City (W2)	Walking: General	Cycling: State (C1)	Cycling: City (C2)	Cycling: Local (C3)	Public Transport: Dedicated (P1)	Public Transport: Priority (P2)	Public Transport: Local (P3)	Freight: State Sig (F1)	Freight: Major (F2)	Freight: Local F3)	No Specific	Capital City / Met Centre	Town Center	Economic / Industrial					
Expressway																														
R2+M//+W1+C1+P1+F2	X			X					X		X			X		N/A	X			N/A	X	N/A	X				SR	Pro	93.2	94	
R2+M//+W1+C1+P1+F3	X			X					X		X			X		N/A	X			N/A	X	N/A	X				SR	Pro	96.7	97	
R2+M//+W1+C1+P1+F4	X			X					X		X			X		N/A	X			N/A	X	N/A	X				SR	Pro	89.4	90	
R2+M//+W1+C2	X			X					X		X				X	N/A				N/A		N/A	X				SR	Pro	87.4	88	
R2+M//+W1+C2+P1	X			X					X		X				X	N/A	X			N/A		N/A	X				SR	Pro	93.2	94	
R2+M//+W1+C2+P2	X			X					X		X				X	N/A		X		N/A		N/A	X				SR	Pro	96.7	97	
R2+M//+W1+C2+P3	X			X					X		X				X	N/A			X	N/A		N/A	X				SR	Pro	89.4	90	
R2+M//+W3+C3	X			X					X			X			X	N/A				N/A		N/A	X				SR	Pro	87.4	88	
R2+M//+W2+C2+P1	X			X					X			X			X	N/A	X			N/A		N/A	X				SR	Pro	93.2	94	
R2+M//+W2+C2+P2	X			X					X			X			X	N/A		X		N/A		N/A	X				SR	Pro	96.7	97	
R2+M//+W2+C2+P3	X			X					X			X			X	N/A			X	N/A		N/A	X				SR	Pro	89.4	90	
R2+M//+Walk (Other)+C2	X			X					X				X		X	N/A				N/A		N/A	X				SR	Pro	87.4	88	
R2+M//+Walk (Other)+C2+P1	X			X					X				X		X	N/A	X			N/A		N/A	X				SR	Pro	87.2	88	
R2+M//+Walk (Other)+C2+P2	X			X					X				X		X	N/A		X		N/A		N/A	X				SR	Pro	90.7	91	
R2+M//+Walk (Other)+C3+P3	X			X					X				X		X	N/A			X	N/A		N/A	X				SR	Pro	89.4	90	
R2+M//+Walk (Other)+C2+P1+P2	X			X					X				X		X	N/A	X			N/A	X	N/A	X				SR	Pro	87.2	88	
R2+M//+Walk (Other)+C2+P2+P2	X			X					X				X		X	N/A		X		N/A	X	N/A	X				SR	Pro	90.7	91	
R2+M//+Walk (Other)+C2+P3+P2	X			X					X				X		X	N/A			X	N/A	X	N/A	X				SR	Pro	89.4	90	
R2+M//+W1+C1+P1+P2	X			X					X		X				X	N/A	X			N/A	X	N/A	X				SR	Pro	93.2	94	
R2+M//+W1+C1+P2+P2	X			X					X		X				X	N/A		X		N/A	X	N/A	X				SR	Pro	96.7	97	
R2+M//+W1+C1+P3+P2	X			X					X		X				X	N/A			X	N/A	X	N/A	X				SR	Pro	89.4	90	
R2+M//+W1+TC	X			X					X		X					N/A				N/A		N/A			X			Pro	68.8	69	
R2+M//+W2+TC	X			X					X			X				N/A				N/A		N/A			X			Pro	91.8	92	
R2+M//+W3(General)+TC	X			X					X				X			N/A				N/A		N/A			X			Pro	56.2	57	
R2+M//+W1+C1+TC	X			X					X		X			X		N/A				N/A		N/A			X			Pro	70.8	71	
R2+M//+W1+C1+P1+TC	X			X					X		X			X		N/A	X			N/A		N/A			X			Pro	74.6	75	
R2+M//+W1+C1+P2+TC	X			X					X		X			X		N/A		X		N/A		N/A			X			Pro	70.8	71	
R2+M//+W1+C1+P3+TC	X			X					X		X			X		N/A			X	N/A		N/A			X			Pro	70.8	71	
R2+M//+W2+C2+TC	X			X					X			X		X		N/A				N/A		N/A			X			Pro	68.8	69	
R2+M//+W2+C2+P1+TC	X			X					X			X		X		N/A	X			N/A		N/A			X			Pro	72.6	73	
R2+M//+W2+C2+P2+TC	X			X					X			X		X		N/A		X		N/A		N/A			X			Pro	64.8	65	
R2+M//+W2+C2+P3+TC	X			X					X			X		X		N/A			X	N/A		N/A			X			Pro	68.8	69	
R2+M//+Walk (Other)+C3+TC	X			X					X				X	X		N/A				N/A		N/A			X			Pro	68.8	69	
R2+M//+Walk (Other)+C2+P1+TC	X			X					X				X	X		N/A	X			N/A		N/A			X			Pro	68.6	69	
R2+M//+Walk (Other)+C2+P2+TC	X			X					X				X	X		N/A		X		N/A		N/A			X			Pro	62.8	63	
R2+M//+Walk (Other)+C2+P3+TC	X			X					X				X	X		N/A			X	N/A		N/A			X			Pro	62.8	63	
R2+M//+W1+C1+P1+F2+TC	X			X					X		X			X		N/A	X			N/A	X	N/A			X			Pro	74.6	75	
R2+M//+W1+C1+P2+F2+TC	X			X					X		X			X		N/A		X		N/A	X	N/A			X			Pro	70.8	71	
R2+M//+W1+C1+P3+F2+TC	X			X					X		X			X		N/A			X	N/A	X	N/A			X			Pro	70.8	71	
R2+M//+W1+C2+TC	X			X					X		X				X	N/A				N/A		N/A			X			Pro	70.8	71	
R2+M//+W1+C2+P1+TC	X			X					X		X				X	N/A	X			N/A		N/A			X			Pro	74.6	75	
R2+M//+W1+C2+P2+TC	X			X					X		X				X	N/A		X		N/A		N/A			X			Pro	70.8	71	
R2+M//+W1+C2+P3+TC	X			X					X		X				X	N/A			X	N/A		N/A			X			Pro	70.8	71	
R2+M//+W2+C2+TC	X			X					X			X			X	N/A				N/A		N/A			X			Pro	68.8	69	
R2+M//+W2+C2+P1+TC	X			X					X			X			X	N/A	X			N/A		N/A			X			Pro	72.6	73	
R2+M//+W2+C2+P2+TC	X			X					X			X			X	N/A		X		N/A		N/A			X			Pro	64.8	65	
R2+M//+W2+C2+P3+TC	X			X					X			X			X	N/A			X	N/A		N/A			X			Pro	68.8	69	
R2+M//+Walk (Other)+C3+TC	X			X					X				X		X	N/A				N/A		N/A			X			Pro	68.8	69	
R2+M//+Walk (Other)+C2+P1+TC	X			X					X				X		X	N/A	X			N/A		N/A			X			Pro	68.6	69	
R2+M//+Walk (Other)+C2+P2+TC	X			X					X				X		X	N/A		X		N/A		N/A			X			Pro	62.8	63	
R2+M//+Walk (Other)+C2+P3+TC	X			X					X				X		X	N/A			X	N/A		N/A			X			Pro	62.8	63	
R2+M//+W1+C2+P1+F2+TC	X			X					X		X				X	N/A	X			N/A	X	N/A			X			Pro	74.6	75	
R2+M//+W1+C2+P2+F2+TC	X			X					X		X				X	N/A		X		N/A	X	N/A			X			Pro	70.8	71	
R2+M//+W1+C2+P3+F2+TC	X			X					X		X				X	N/A			X	N/A	X	N/A			X			Pro	70.8	71	
R2+M//+W1+C1+F2+TC	X			X					X							N/A				N/A					X			Pro	67.6	68	
R2+M//+W1+C1+P1+F2+TC	X			X					X							N/A				N/A	X	N/A			X			Pro	68.8	69	
R2+M//+W1+C1+P2+F2+TC	X			X					X							N/A				N/A	X	N/A			X			Pro	68.8	69	
R3+M//+W1+TC	X			X					X		X					N/A				N/A					X		SR	Pro	81	81	Service Road assumes 3m median between service road and Arterial. Service Road assumes 2 lanes in each direction - lane width 3.3
R2+M//+W2+TC	X			X					X			X				N/A				N/A					X		SR	Pro	75	75	
R2+M//+W3(General)+TC	X			X					X				X			N/A				N/A					X		SR	Pro	73.4	74	
R2+M//+W1+C1+TC	X			X					X		X			X		N/A				N/A					X		SR	Pro	88	88	
R2+M//+W1+C1+P1+TC	X			X					X		X			X		N/A	X			N/A					X		SR	Pro	91.8	92	
R2+M//+W1+C1+P2+TC	X			X					X		X			X		N/A		X		N/A					X		SR	Pro	86	86	
R2+M//+W1+C1+P3+TC	X			X					X		X			X		N/A			X	N/A					X		SR	Pro	88	88	
R2+M//+W2+C1+TC	X			X					X			X		X		N/A				N/A					X		SR	Pro	86	86	
R2+M//+W2+C1+P1+TC	X			X					X			X		X		N/A	X			N/A					X		SR	Pro	89.8	90	
R2+M//+W2+C1+P2+TC	X			X					X			X		X		N/A		X		N/A					X		SR	Pro	82	82	
R2+M//+W2+C1+P3+TC	X			X					X			X		X		N/A			X	N/A					X		SR	Pro	86	86	
R2+M//+Walk (Other)+C1+TC	X			X					X				X	X		N/A				N/A					X		SR	Pro	81	81	
R2+M//+Walk (Other)+C1+P1+TC	X			X					X				X	X		N/A	X			N/A					X		SR	Pro	85.8	86	
R2+M//+Walk (Other)+C1+P2+TC	X			X					X				X	X		N/A		X		N/A					X		SR	Pro	80	80	
R2+M//+Walk (Other)+C1+P3+TC	X			X					X				X	X		N/A			X	N/A					X		SR	Pro	80	80	
R2+M//+W1+C1+P1+F2+TC	X			X					X		X			X		N/A	X			N/A	X	N/A			X		SR	Pro	91.8	92	
R2+M//+W1+C1+P2+F2+TC	X			X					X		X			X		N/A		X		N/A	X	N/A			X		SR	Pro	86	86	
R2+M//+W1+C1+P3+F2+TC	X			X					X		X			X		N/A			X	N/A	X	N/A			X		SR	Pro	88	88	
R2+M//+W1+C2+TC	X			X					X		X				X	N/A				N/A					X		SR	Pro	88	88	
R2+M//+W1+C2+P1+TC	X			X					X		X				X	N/A	X			N/A					X		SR	Pro	91.8	92	

Label	Stage 1 - Road Typology									Stage 2 - Mode Specific													Stage 3 - Context Specific				Service Road / Frontage Road	Parking	Cross Section Width	Rounded Up Cross Section Width	Cross Section Specific Notes
										No specific	Walking			Cycling			Public Transport			Freight			No Specific	Capital City / Met Centre	Town Center	Economic / Industrial					
	Urban	Rural	Expressway (R1)	Arterial (R2)	Collector (R3)	Local (R4)	Low Volume	Average Volume	High Volume		Prestige (W1)	City (W2)	General	State (C1)	City (C2)	Local (C3)	Dedicated (P1)	Priority (P2)	Local (P3)	State Sig (F1)	Major (F2)	Local F3)									
																				Expressway										
R2+Mj+W1+C2+P2+TC	X			X					X		X				X	N/A		X		N/A		N/A				X		SR	Pro	88	88	
R2+Mj+W1+C2+P3+TC	X			X					X		X				X	N/A			X	N/A		N/A				X		SR	Pro	88	88	
R2+Mj+W2+C2+TC	X			X					X			X			X	N/A				N/A		N/A				X		SR	Pro	86	86	
R2+Mj+W2+C2+P1+TC	X			X					X			X			X	N/A	X			N/A		N/A				X		SR	Pro	89.8	90	
R2+Mj+W2+C2+P2+TC	X			X					X			X			X	N/A		X		N/A		N/A				X		SR	Pro	82	82	
R2+Mj+W2+C2+P3+TC	X			X					X			X			X	N/A			X	N/A		N/A				X		SR	Pro	86	86	
R2+Mj+Walk(Other)+C2+TC	X			X					X				X		X	N/A				N/A		N/A				X		SR	Pro	81	81	
R2+Mj+Walk(Other)+C2+P1+TC	X			X					X				X		X	N/A	X			N/A		N/A				X		SR	Pro	85.8	86	
R2+Mj+Walk(Other)+C2+P2+TC	X			X					X				X		X	N/A		X		N/A		N/A				X		SR	Pro	80	80	
R2+Mj+Walk(Other)+C2+P3+TC	X			X					X				X		X	N/A			X	N/A		N/A				X		SR	Pro	80	80	
R2+Mj+W1+C2+P1+F2+TC	X			X					X		X				X	N/A	X			N/A	X	N/A				X		SR	Pro	91.8	92	
R2+Mj+W1+C2+P2+F2+TC	X			X					X		X				X	N/A		X		N/A	X	N/A				X		SR	Pro	88	88	
R2+Mj+W1+C2+P3+F2+TC	X			X					X		X				X	N/A			X	N/A	X	N/A				X		SR	Pro	88	88	
R2+Mj+W1+P1+F2+TC	X			X					X							N/A				N/A	X	N/A				X		SR	Pro	84.8	85	
R2+Mj+W1+P3+F2+TC	X			X					X							N/A				N/A	X	N/A				X		SR	Pro	81	81	
R2+Mj+W1+P3+F2+TC	X			X					X							N/A				N/A	X	N/A				X		SR	Pro	81	81	
R2+Mj+F2+El	X			X					X	X						N/A				N/A	X	N/A			X				Pro	49.8	50	
R2+Mj+W1+F2+El	X			X					X		X					N/A				N/A	X	N/A			X				Pro	68.8	69	
R2+Mj+W2+F2+El	X			X					X			X				N/A				N/A	X	N/A			X				Pro	61.8	62	
R2+Mj+Wlk(Genera)+F2+El	X			X					X				X			N/A				N/A	X	N/A			X				Pro	56.2	57	
R2+Mj+W2+C2+F2+El	X			X					X		X			X		N/A				N/A	X	N/A			X				Pro	70.8	71	
R2+Mj+W1+C2+F2+El	X			X					X		X				X	N/A				N/A	X	N/A			X				Pro	70.8	71	
R2+Mj+W1+F2+P1+El	X			X					X		X					N/A	X			N/A	X	N/A			X				Pro	63.8	64	
R2+Mj+W1+F2+P2+El	X			X					X		X					N/A		X		N/A	X	N/A			X				Pro	63.8	64	
R2+Mj+W1+F2+P3+El	X			X					X		X					N/A			X	N/A	X	N/A			X				Pro	63.8	64	
R2+Mj+W1+C1+P1+F2+El	X			X					X		X			X		N/A	X			N/A	X	N/A			X				Pro	70.8	71	
R2+Mj+W1+C1+P2+F2+El	X			X					X		X			X		N/A		X		N/A	X	N/A			X				Pro	79.1	79	
R2+Mj+W1+C1+P3+F2+El	X			X					X		X			X		N/A			X	N/A	X	N/A			X				Pro	70.8	71	
R2+Mj+W2+C1+F2+El	X			X					X			X		X		N/A				N/A	X	N/A			X				Pro	68.8	69	
R2+Mj+W1+C2+P1+F2+El	X			X					X		X				X	N/A	X			N/A	X	N/A			X				Pro	70.8	71	
R2+Mj+W1+C2+P2+F2+El	X			X					X		X				X	N/A		X		N/A	X	N/A			X				Pro	78.1	78	
R2+Mj+W1+C2+P3+F2+El	X			X					X		X				X	N/A			X	N/A	X	N/A			X				Pro	70.8	71	
R2+Mj+W2+C2+F2+El	X			X					X			X			X	N/A				N/A	X	N/A			X				Pro	68.8	69	
R2+Mj+W2+P1+F2+El	X			X					X			X				N/A	X			N/A	X	N/A			X				Pro	61.8	62	
R2+Mj+W2+P2+F2+El	X			X					X			X				N/A		X		N/A	X	N/A			X				Pro	69.1	70	
R2+Mj+W2+P3+F2+El	X			X					X			X				N/A			X	N/A	X	N/A			X				Pro	61.8	62	
R2+Mj+W2+C1+P1+F2+El	X			X					X			X		X		N/A	X			N/A	X	N/A			X				Pro	68.8	69	
R2+Mj+W2+C1+P2+F2+El	X			X					X			X		X		N/A		X		N/A	X	N/A			X				Pro	76.2	77	
R2+Mj+W2+C1+P3+F2+El	X			X					X			X		X		N/A			X	N/A	X	N/A			X				Pro	68.8	69	
R2+Mj+Walk(Other)+C2+F2+El	X			X					X				X	X		N/A				N/A	X	N/A			X				Pro	64.8	65	
R2+Mj+W2+C2+P1+F2+El	X			X					X			X			X	N/A	X			N/A	X	N/A			X				Pro	68.8	69	
R2+Mj+W2+C2+P2+F2+El	X			X					X			X			X	N/A		X		N/A	X	N/A			X				Pro	78.1	77	
R2+Mj+W2+C2+P3+F2+El	X			X					X			X			X	N/A			X	N/A	X	N/A			X				Pro	68.8	69	
R2+Mj+Walk(Other)+C2+F2+El	X			X					X				X		X	N/A				N/A	X	N/A			X				Pro	64.8	65	
R2+Mj+Walk(Other)+P1+F2+El	X			X					X				X		X	N/A	X			N/A	X	N/A			X				Pro	56.2	57	
R2+Mj+Walk(Other)+P2+F2+El	X			X					X				X			N/A		X		N/A	X	N/A			X				Pro	63.5	64	
R2+Mj+Walk(Other)+P3+F2+El	X			X					X				X			N/A			X	N/A	X	N/A			X				Pro	56.2	57	
R2+Mj+Walk(Other)+C1+P1+F2+El	X			X					X				X	X		N/A	X			N/A	X	N/A			X				Pro	64.8	65	
R2+Mj+Walk(Other)+C1+P2+F2+El	X			X					X				X	X		N/A		X		N/A	X	N/A			X				Pro	72.1	73	
R2+Mj+Walk(Other)+C1+P3+F2+El	X			X					X				X	X		N/A			X	N/A	X	N/A			X				Pro	64.8	65	
R2+Mj+Walk(Other)+C2+P1+F2+El	X			X					X				X		X	N/A	X			N/A	X	N/A			X				Pro	64.8	65	
R2+Mj+Walk(Other)+C2+P2+F2+El	X			X					X				X		X	N/A		X		N/A	X	N/A			X				Pro	72.1	73	
R2+Mj+Walk(Other)+C2+P3+F2+El	X			X					X				X		X	N/A			X	N/A	X	N/A			X				Pro	64.8	65	
R2+Mj+F2+El	X			X					X	X						N/A				N/A	X	N/A			X		SR	Pro	68.4	69	Service Road assumes 2m median between service road and Arterial Service Road assumes 2 lanes in each direction - lane width 3.65
R2+Mj+W2+F2+El	X			X					X		X					N/A				N/A	X	N/A			X		SR	Pro	82.4	83	
R2+Mj+W2+F2+El	X			X					X			X				N/A				N/A	X	N/A			X		SR	Pro	80.4	81	
R2+Mj+Wlk(Genera)+F2+El	X			X					X				X			N/A				N/A	X	N/A			X		SR	Pro	74.8	75	
R2+Mj+W1+C1+F2+El	X			X					X		X			X		N/A				N/A	X	N/A			X		SR	Pro	89.6	90	
R2+Mj+W1+C2+F2+El	X			X					X		X				X	N/A				N/A	X	N/A			X		SR	Pro	89.4	90	
R2+Mj+W1+F2+P1+El	X			X					X		X					N/A	X			N/A	X	N/A			X		SR	Pro	82.4	83	
R2+Mj+W1+F2+P2+El	X			X					X		X					N/A		X		N/A	X	N/A			X		SR	Pro	82.4	83	
R2+Mj+W1+F2+P3+El	X			X					X		X					N/A			X	N/A	X	N/A			X		SR	Pro	82.4	83	
R2+Mj+W1+C1+P1+F2+El	X			X					X		X			X		N/A	X			N/A	X	N/A			X		SR	Pro	89.4	90	
R2+Mj+W1+C1+P2+F2+El	X			X					X		X			X		N/A		X		N/A	X	N/A			X		SR	Pro	96.7	97	
R2+Mj+W1+C1+P3+F2+El	X			X					X		X			X		N/A			X	N/A	X	N/A			X		SR	Pro	89.4	90	
R2+Mj+W2+C1+F2+El	X			X					X			X		X		N/A				N/A	X	N/A			X		SR	Pro	87.4	88	
R2+Mj+W1+C2+P1+F2+El	X			X					X		X				X	N/A	X			N/A	X	N/A			X		SR	Pro	89.4	90	
R2+Mj+W2+C2+P2+F2+El	X			X					X		X				X	N/A		X		N/A	X	N/A			X		SR	Pro	96.7	97	
R2+Mj+W1+C2+P3+F2+El	X			X					X		X				X	N/A			X	N/A	X	N/A			X		SR	Pro	89.4	90	
R2+Mj+W2+C2+F2+El	X			X					X			X			X	N/A				N/A	X	N/A			X		SR	Pro	87.4	88	
R2+Mj+W2+P1+F2+El	X			X					X			X				N/A	X			N/A	X	N/A			X		SR	Pro	80.4	81	

APPENDIX C

Label	Stage 1 - Road Typology									Stage 2 - Mode Specific													Stage 3 - Context Specific				Service Road / Frontage Road	Parking	Cross Section Width	Rounded Up Cross Section Width	Cross Section Specific Notes
										No specific	Walking			Cycling			Public Transport			Freight											
	Urban	Rural	Expressway (R1)	Arterial (R2)	Collector (R3)	Local (R4)	Low Volume	Average Volume	High Volume		Prestige (W1)	City (W2)	General	State (C1)	City (C2)	Local (C3)	Dedicated (P1)	Priority (P2)	Local (P3)	State Sig (F1)	Major (F2)	Local F3)	No Specific	Capital City / Met Centre	Town Center	Economic / Industrial					
																										Expressway					
R2+Mjr+W2+P2+F2+E)	X			X					X			X				N/A		X		N/A	X	N/A				X	SR	Pro	87.7	88	
R2+Mjr+W2+F3+F2+E)	X			X					X			X				N/A			X	N/A	X	N/A				X	SR	Pro	80.4	81	
R2+Mjr+W2+C1+P1+F2+E)	X			X					X			X		X		N/A	X			N/A	X	N/A				X	SR	Pro	87.4	88	
R2+Mjr+W2+C1+P2+F2+E)	X			X					X			X		X		N/A		X		N/A	X	N/A				X	SR	Pro	94.7	95	
R2+Mjr+W2+C1+P3+F2+E)	X			X					X			X		X		N/A			X	N/A	X	N/A				X	SR	Pro	87.4	88	
R2+Mjr+Walk(Other)+C1+F2+E)	X			X					X				X	X		N/A				N/A	X	N/A				X	SR	Pro	83.4	84	
R2+Mjr+W2+C2+P1+F2+E)	X			X					X			X			X	N/A	X			N/A	X	N/A				X	SR	Pro	87.4	88	
R2+Mjr+W2+C2+P2+F2+E)	X			X					X			X			X	N/A		X		N/A	X	N/A				X	SR	Pro	94.7	95	
R2+Mjr+W2+C2+P3+F2+E)	X			X					X			X			X	N/A			X	N/A	X	N/A				X	SR	Pro	87.4	88	
R2+Mjr+Walk(Other)+C2+F2+E)	X			X					X				X		X	N/A				N/A	X	N/A				X	SR	Pro	83.4	84	
R2+Mjr+Walk(Other)+P1+F2+E)	X			X					X				X			N/A	X			N/A	X	N/A				X	SR	Pro	74.8	75	
R2+Mjr+Walk(Other)+P2+F2+E)	X			X					X				X			N/A		X		N/A	X	N/A				X	SR	Pro	82.1	83	
R2+Mjr+Walk(Other)+P3+F2+E)	X			X					X				X			N/A			X	N/A	X	N/A				X	SR	Pro	74.8	75	
R2+Mjr+Walk(Other)+C1+P1+F2+E)	X			X					X				X	X		N/A	X			N/A	X	N/A				X	SR	Pro	83.4	84	
R2+Mjr+Walk(Other)+C1+P2+F2+E)	X			X					X				X	X		N/A		X		N/A	X	N/A				X	SR	Pro	90.7	91	
R2+Mjr+Walk(Other)+C1+P3+F2+E)	X			X					X				X	X		N/A			X	N/A	X	N/A				X	SR	Pro	83.4	84	
R2+Mjr+Walk(Other)+C2+P1+F2+E)	X			X					X				X		X	N/A	X			N/A	X	N/A				X	SR	Pro	83.4	84	
R2+Mjr+Walk(Other)+C2+P2+F2+E)	X			X					X				X		X	N/A		X		N/A	X	N/A				X	SR	Pro	90.7	91	
R2+Mjr+Walk(Other)+C2+P3+F2+E)	X			X					X				X		X	N/A			X	N/A	X	N/A				X	SR	Pro	83.4	84	
R2+Minor+W1	X			X				X			X					N/A				N/A		N/A	X					Res	50.6	51	
R2+Minor+W2	X			X				X				X				N/A				N/A		N/A	X					Res	48.6	49	
R2+Minor+Walk(General)	X			X				X					X			N/A				N/A		N/A	X					Res	48	48	
R2+Minor+W1+C1	X			X				X			X			X		N/A				N/A		N/A	X					Res	57.6	58	
R2+Minor+W2+C1	X			X				X				X		X		N/A				N/A		N/A	X					Res	55.6	56	
R2+Minor+Walk(General)+C1	X			X				X					X	X		N/A				N/A		N/A	X					Res	51.6	52	
R2+Minor+W1+C2	X			X				X			X				X	N/A				N/A		N/A	X					Res	54.6	55	
R2+Minor+W2+C2	X			X				X				X			X	N/A				N/A		N/A	X					Res	52.6	53	
R2+Minor+Walk(General)+C2	X			X				X					X		X	N/A				N/A		N/A	X					Res	48.6	49	
R3+Minor+W1+P1	X			X				X			X					N/A	X			N/A		N/A	X					Res	60.6	61	
R2+Minor+W1+P2	X			X				X			X					N/A		X		N/A		N/A	X					Res	57.9	58	
R2+Minor+W1+P3	X			X				X			X					N/A			X	N/A		N/A	X					Res	50.6	51	
R2+Minor+W2+P1	X			X				X				X				N/A	X			N/A		N/A	X					Res	58.6	59	
R2+Minor+W2+P2	X			X				X				X				N/A		X		N/A		N/A	X					Res	55.9	56	
R2+Minor+W2+P3	X			X				X				X				N/A			X	N/A		N/A	X					Res	48.6	49	
R2+Minor+Walk(General)+P1	X			X				X					X			N/A	X			N/A		N/A	X					Res	53	53	
R2+Minor+Walk(General)+P2	X			X				X					X			N/A		X		N/A		N/A	X					Res	50.3	51	
R2+Minor+Walk(General)+P3	X			X				X					X			N/A			X	N/A		N/A	X					Res	43	43	
R2+Minor+W1+C1+P1	X			X				X			X			X		N/A	X			N/A		N/A	X					Res	67.6	68	
R2+Minor+W1+C1+P2	X			X				X			X			X		N/A		X		N/A		N/A	X					Res	64.9	65	
R2+Minor+W1+C1+P3	X			X				X			X			X		N/A			X	N/A		N/A	X					Res	57.6	58	
R2+Minor+W2+C1+P1	X			X				X				X		X		N/A	X			N/A		N/A	X					Res	81.6	82	
R2+Minor+W2+C1+P2	X			X				X				X		X		N/A		X		N/A		N/A	X					Res	62.9	63	
R2+Minor+W2+C1+P3	X			X				X				X		X		N/A			X	N/A		N/A	X					Res	55.6	56	
R2+Minor+Walk(General)+C1+P1	X			X				X					X	X		N/A	X			N/A		N/A	X					Res	61.6	62	
R2+Minor+Walk(General)+C1+P2	X			X				X					X	X		N/A		X		N/A		N/A	X					Res	58.9	59	
R2+Minor+Walk(General)+C1+P3	X			X				X					X	X		N/A			X	N/A		N/A	X					Res	51.6	52	
R2+Minor+W1+C2+P1	X			X				X			X				X	N/A	X			N/A		N/A	X					Res	64.6	65	
R2+Minor+W1+C2+P2	X			X				X			X				X	N/A		X		N/A		N/A	X					Res	61.9	62	
R2+Minor+W1+C2+P3	X			X				X			X				X	N/A			X	N/A		N/A	X					Res	54.6	55	
R2+Minor+W2+C2+P1	X			X				X				X			X	N/A	X			N/A		N/A	X					Res	78.6	79	
R2+Minor+W2+C2+P2	X			X				X				X			X	N/A		X		N/A		N/A	X					Res	59.9	60	
R2+Minor+W2+C2+P3	X			X				X				X			X	N/A			X	N/A		N/A	X					Res	52.6	53	
R2+Minor+Walk(General)+C2+P1	X			X				X					X		X	N/A	X			N/A		N/A	X					Res	58.6	59	
R2+Minor+Walk(General)+C2+P2	X			X				X					X		X	N/A		X		N/A		N/A	X					Res	55.9	56	
R2+Minor+Walk(General)+C2+P3	X			X				X					X		X	N/A			X	N/A		N/A	X					Res	48.6	49	
R2+Minor+W1+P2	X			X				X			X					N/A				N/A	X	N/A	X					Res	58.9	59	
R2+Minor+W2+P2	X			X				X				X				N/A				N/A	X	N/A	X					Res	53.9	54	
R2+Minor+Walk(General)+P2	X			X				X					X			N/A				N/A	X	N/A	X					Res	48.3	49	
R2+Minor+W1+C1+P2	X			X				X			X			X		N/A				N/A	X	N/A	X					Res	62.9	63	
R2+Minor+W2+C1+P2	X			X				X				X		X		N/A				N/A	X	N/A	X					Res	60.9	61	
R2+Minor+Walk(General)+C1+P2	X			X				X					X	X		N/A				N/A	X	N/A	X					Res	56.9	57	
R2+Minor+W1+C2+P2	X			X				X			X				X	N/A				N/A	X	N/A	X					Res	59.9	60	
R2+Minor+W2+C2+P2	X			X				X				X			X	N/A				N/A	X	N/A	X					Res	57.9	58	
R2+Minor+Walk(General)+C2+P2	X			X				X					X		X	N/A				N/A	X	N/A	X					Res	53.9	54	
R2+Minor+W1+P1+P2	X			X				X			X					N/A	X			N/A	X	N/A	X					Res	68.9	69	
R2+Minor+W1+P2+P2	X			X				X			X					N/A		X		N/A	X	N/A	X					Res	57.9	58	
R2+Minor+W1+P3+P2	X			X				X			X					N/A			X	N/A	X	N/A	X					Res	50.6	51	
R2+Minor+W2+P1+P2	X			X				X				X				N/A	X			N/A	X	N/A	X					Res	63.9	64	
R2+Minor+W2+P2+P2	X			X				X				X				N/A		X		N/A	X	N/A	X					Res	55.9	56	
R2+Minor+W2+P3+P2	X			X				X				X				N/A			X	N/A	X	N/A	X					Res	48.6	49	
R2+Minor+Walk(General)+P2+P2	X			X				X					X			N/A	X			N/A	X	N/A	X					Res	58.3	59	
R2+Minor+Walk(General)+P2+P2	X			X				X					X			N/A		X		N/A	X	N/A	X					Res	53.6	54	

Label	Stage 1 - Road Typology									Stage 2 - Mode Specific													Stage 3 - Context Specific					Parking	Cross Section Width	Rounded Up Cross Section Width	Cross Section Specific Notes
											Walking			Cycling			Public Transport			Freight											
	Urban	Rural	Exp'way (R1)	Arterial (R2)	Collector (R3)	Local (R4)	Low Volume	Average Volume	High Volume	No specific	Prestige (W1)	City (W2)	General	State (C1)	City (C2)	Local (C3)	Dedicated (P1)	Priority (P2)	Local (P3)	State Sig (F1)	Major (F2)	Local F3	No Specific	Capital City / Met Centre	Town Center	Economic / Industrial	Service Road / Frontage Road				
Expressway																														
R2+Minor+W1+C1+P1+F2	X			X				X					X			N/A				N/A	X	N/A	X					Res	48.3	49	
R2+Minor+W1+C1+P2+F2	X			X				X			X			X		N/A	X			N/A	X	N/A	X					Res	71.9	72	
R2+Minor+W1+C1+P3+F2	X			X				X			X			X		N/A		X		N/A	X	N/A	X					Res	70.2	71	
R2+Minor+W1+C1+P3+F2	X			X				X			X			X		N/A			X	N/A	X	N/A	X					Res	62.9	63	
R2+Minor+W2+C1+P1+F2	X			X				X				X		X		N/A	X			N/A	X	N/A	X					Res	70.9	71	
R2+Minor+W2+C1+P2+F2	X			X				X				X		X		N/A		X		N/A	X	N/A	X					Res	70.2	71	
R2+Minor+W2+C1+P3+F2	X			X				X				X		X		N/A			X	N/A	X	N/A	X					Res	62.9	63	
R2+Minor+W1+[General]+C1+P1+F2	X			X				X					X	X		N/A	X			N/A	X	N/A	X					Res	66.9	67	
R2+Minor+W1+[General]+C1+P2+F2	X			X				X					X	X		N/A		X		N/A	X	N/A	X					Res	64.2	65	
R2+Minor+W1+[General]+C1+P3+F2	X			X				X					X	X		N/A			X	N/A	X	N/A	X					Res	56.9	57	
R2+Minor+W1+C2+P1+F2	X			X				X			X				X	N/A	X			N/A	X	N/A	X					Res	68.9	69	
R2+Minor+W1+C2+P2+F2	X			X				X			X				X	N/A		X		N/A	X	N/A	X					Res	67.2	68	
R2+Minor+W1+C2+P3+F2	X			X				X			X				X	N/A			X	N/A	X	N/A	X					Res	59.9	60	
R2+Minor+W2+C2+P1+F2	X			X				X				X			X	N/A	X			N/A	X	N/A	X					Res	67.9	68	
R2+Minor+W2+C2+P2+F2	X			X				X				X			X	N/A		X		N/A	X	N/A	X					Res	65.2	66	
R2+Minor+W2+C2+P3+F2	X			X				X				X			X	N/A			X	N/A	X	N/A	X					Res	57.9	58	
R2+Minor+W1+[General]+C2+P1+F2	X			X				X					X		X	N/A	X			N/A	X	N/A	X					Res	63.9	64	
R2+Minor+W1+[General]+C2+P2+F2	X			X				X					X		X	N/A		X		N/A	X	N/A	X					Res	61.2	62	
R2+Minor+W1+[General]+C2+P3+F2	X			X				X					X		X	N/A			X	N/A	X	N/A	X					Res	53.9	54	
R2+Minor+W1	X			X				X			X					N/A				N/A		N/A	X				SR	Res	69.3	70	Service Road assumes 3m median between service road and Arterial. Service Road assumes 2 lanes in each direction - lane width 3.65
R2+Minor+W2	X			X				X				X				N/A				N/A		N/A	X				SR	Res	67.2	68	
R2+Minor+W1+[General]	X			X				X					X			N/A				N/A		N/A	X				SR	Res	61.6	62	
R2+Minor+W1+C1	X			X				X			X			X		N/A				N/A		N/A	X				SR	Res	76.2	77	
R2+Minor+W2+C1	X			X				X				X		X		N/A				N/A		N/A	X				SR	Res	74.2	75	
R2+Minor+W1+[General]+C1	X			X				X					X	X		N/A				N/A		N/A	X				SR	Res	70.2	71	
R2+Minor+W1+C2	X			X				X			X				X	N/A				N/A		N/A	X				SR	Res	73.2	74	
R2+Minor+W2+C2	X			X				X				X			X	N/A				N/A		N/A	X				SR	Res	71.2	72	
R2+Minor+W1+[General]+C2	X			X				X					X		X	N/A				N/A		N/A	X				SR	Res	67.2	68	
R2+Minor+W1+P1	X			X				X			X					N/A	X			N/A		N/A	X				SR	Res	79.2	80	
R2+Minor+W1+P2	X			X				X			X					N/A		X		N/A		N/A	X				SR	Res	76.5	77	
R2+Minor+W1+P3	X			X				X			X					N/A			X	N/A		N/A	X				SR	Res	68.2	70	
R2+Minor+W2+P1	X			X				X				X				N/A	X			N/A		N/A	X				SR	Res	77.2	78	
R2+Minor+W2+P2	X			X				X				X				N/A		X		N/A		N/A	X				SR	Res	74.5	75	
R2+Minor+W2+P3	X			X				X				X				N/A			X	N/A		N/A	X				SR	Res	67.2	68	
R2+Minor+W1+[General]+P1	X			X				X					X			N/A	X			N/A		N/A	X				SR	Res	71.6	72	
R2+Minor+W1+[General]+P2	X			X				X					X			N/A		X		N/A		N/A	X				SR	Res	68.9	69	
R2+Minor+W1+[General]+P3	X			X				X					X			N/A			X	N/A		N/A	X				SR	Res	61.6	62	
R2+Minor+W1+C1+P1	X			X				X			X			X		N/A	X			N/A		N/A	X				SR	Res	86.3	87	
R2+Minor+W1+C1+P2	X			X				X			X			X		N/A		X		N/A		N/A	X				SR	Res	83.5	84	
R2+Minor+W1+C1+P3	X			X				X			X			X		N/A			X	N/A		N/A	X				SR	Res	76.2	77	
R2+Minor+W2+C1+P1	X			X				X				X		X		N/A	X			N/A		N/A	X				SR	Res	100.2	101	
R2+Minor+W2+C1+P2	X			X				X				X		X		N/A		X		N/A		N/A	X				SR	Res	81.5	82	
R2+Minor+W2+C1+P3	X			X				X				X		X		N/A			X	N/A		N/A	X				SR	Res	74.2	75	
R2+Minor+W1+[General]+C2+P1	X			X				X					X	X		N/A	X			N/A		N/A	X				SR	Res	80.2	81	
R2+Minor+W1+[General]+C2+P2	X			X				X					X	X		N/A		X		N/A		N/A	X				SR	Res	77.8	78	
R2+Minor+W1+[General]+C2+P3	X			X				X					X	X		N/A			X	N/A		N/A	X				SR	Res	70.2	71	
R2+Minor+W1+C2+P1	X			X				X			X				X	N/A	X			N/A		N/A	X				SR	Res	83.2	84	
R2+Minor+W1+C2+P2	X			X				X			X				X	N/A		X		N/A		N/A	X				SR	Res	80.5	81	
R2+Minor+W1+C2+P3	X			X				X			X				X	N/A			X	N/A		N/A	X				SR	Res	73.2	74	
R2+Minor+W2+C2+P1	X			X				X				X			X	N/A	X			N/A		N/A	X				SR	Res	97.2	98	
R2+Minor+W2+C2+P2	X			X				X				X			X	N/A		X		N/A		N/A	X				SR	Res	78.5	79	
R2+Minor+W2+C2+P3	X			X				X				X			X	N/A			X	N/A		N/A	X				SR	Res	71.2	72	
R2+Minor+W1+[General]+C2+P1	X			X				X					X		X	N/A	X			N/A		N/A	X				SR	Res	77.2	78	
R2+Minor+W1+[General]+C2+P2	X			X				X					X		X	N/A		X		N/A		N/A	X				SR	Res	74.5	75	
R2+Minor+W1+[General]+C2+P3	X			X				X					X		X	N/A			X	N/A		N/A	X				SR	Res	67.2	68	
R2+Minor+W1+F2	X			X				X			X					N/A				N/A	X	N/A	X				SR	Res	74.6	75	
R2+Minor+W2+F2	X			X				X				X				N/A				N/A	X	N/A	X				SR	Res	72.6	73	
R2+Minor+W1+[General]+F2	X			X				X					X			N/A				N/A	X	N/A	X				SR	Res	66.9	67	
R2+Minor+W1+C1+P3	X			X				X			X			X		N/A				N/A	X	N/A	X				SR	Res	81.5	82	
R2+Minor+W2+C1+P3	X			X				X				X		X		N/A				N/A	X	N/A	X				SR	Res	79.5	80	
R2+Minor+W1+[General]+C1+P3	X			X				X					X	X		N/A				N/A	X	N/A	X				SR	Res	75.5	76	
R2+Minor+W1+C2+P2	X			X				X			X				X	N/A				N/A	X	N/A	X				SR	Res	78.5	79	
R2+Minor+W2+C2+P2	X			X				X				X			X	N/A				N/A	X	N/A	X				SR	Res	76.5	77	
R2+Minor+W1+[General]+C2+P2	X			X				X					X		X	N/A				N/A	X	N/A	X				SR	Res	72.5	73	
R2+Minor+W1+P1+F2	X			X				X			X					N/A	X			N/A	X	N/A	X				SR	Res	84.6	85	
R2+Minor+W1+P2+F2	X			X				X			X					N/A		X		N/A	X	N/A	X				SR	Res	76.5	77	
R2+Minor+W1+P3+F2	X			X				X			X					N/A			X	N/A	X	N/A	X				SR	Res	69.2	70	
R2+Minor+W2+P1+F2	X			X				X				X				N/A	X			N/A	X	N/A	X				SR	Res	82.5	83	
R2+Minor+W2+P2+F2	X			X				X				X				N/A		X		N/A	X	N/A	X				SR	Res	74.5	75	
R2+Minor+W2+P3+F2	X			X				X				X				N/A			X	N/A	X	N/A	X				SR	Res	67.2	68	
R2+Minor+W1+[General]+P1+F2	X			X				X					X			N/A	X			N/A	X	N/A	X				SR	Res	76.9	77	
R2+Minor+W1+[General]+P2+F2	X			X				X					X			N/A		X		N/A	X	N/A	X				SR	Res	74.2	75	
R2+Minor+W1+[General]+P3+F2	X			X				X					X			N/A			X	N/A	X	N/A	X				SR	Res	66.9	67	
R2+Minor+W1+C1+P1+F2	X			X				X			X			X		N/A	X			N/A	X	N/A	X				SR	Res	90.5	91	
R2+Minor+W1+C1+P2+F2	X			X				X			X			X		N/A		X		N/A	X	N/A	X				SR	Res	88.8	89	
R2+Minor+W1+C1+P3+F2	X			X				X			X			X		N/A	X			N/A	X	N/A	X				SR	Res	81.5	82	
R2+Minor+W2+C1+P3+F2	X			X				X				X		X		N/A	X			N/A	X	N/A	X				SR	Res	89.5	90	

APPENDIX C

Label	Stage 1 - Road Typology									Stage 2 - Mode Specific												Stage 3 - Context Specific				Service Road / Frontage Road	Parking	Cross Section Width	Rounded Up Cross Section Width	Cross Section Specific Notes
											Walking			Cycling			Public Transport			Freight											
	Urban	Rural	Expressway (R1)	Arterial (R2)	Collector (R3)	Local (R4)	Low Volume	Average Volume	High Volume	No specific	Prestige (W1)	City (W2)	General	State (C1)	City (C2)	Local (C3)	Dedicated (P1)	Priority (P2)	Local (P3)	State Sig (F1)	Major (F2)	Local F3	No Specific	Capital City / Met Centre	Town Center	Economic / Industrial					
Expressway																														
R2+Minor+W2+C1+P2+F2	X			X				X				X		X		N/A		X		N/A	X	N/A	X				SR	Res	88.8	89	
R2+Minor+W2+C1+P3+F2	X			X				X				X		X		N/A			X	N/A	X	N/A	X				SR	Res	81.5	82	
R2+Minor+W4(General)+C1+P1+F2	X			X				X					X	X		N/A	X			N/A	X	N/A	X				SR	Res	85.5	86	
R2+Minor+W4(General)+C1+P2+F2	X			X				X					X	X		N/A		X		N/A	X	N/A	X				SR	Res	82.8	83	
R2+Minor+W4(General)+C1+P3+F2	X			X				X					X	X		N/A			X	N/A	X	N/A	X				SR	Res	75.5	76	
R2+Minor+W1+C2+P3+F2	X			X				X			X				X	N/A	X			N/A	X	N/A	X				SR	Res	87.8	88	
R2+Minor+W1+C2+P2+F2	X			X				X			X				X	N/A		X		N/A	X	N/A	X				SR	Res	85.8	86	
R2+Minor+W1+C2+P3+F2	X			X				X			X				X	N/A			X	N/A	X	N/A	X				SR	Res	78.5	79	
R2+Minor+W2+C2+P1+F2	X			X				X				X			X	N/A	X			N/A	X	N/A	X				SR	Res	86.5	87	
R2+Minor+W2+C2+P2+F2	X			X				X				X			X	N/A		X		N/A	X	N/A	X				SR	Res	83.8	84	
R2+Minor+W2+C2+P3+F2	X			X				X				X			X	N/A			X	N/A	X	N/A	X				SR	Res	76.5	77	
R2+Minor+W4(General)+C2+P1+F2	X			X				X					X		X	N/A	X			N/A	X	N/A	X				SR	Res	82.5	83	
R2+Minor+W4(General)+C2+P2+F2	X			X				X					X		X	N/A		X		N/A	X	N/A	X				SR	Res	79.8	80	
R2+Minor+W4(General)+C2+P3+F2	X			X				X					X		X	N/A			X	N/A	X	N/A	X				SR	Res	72.5	73	
R2+Minor+W1+TC	X			X				X			X					N/A				N/A					X			Res	41.2	42	
R2+Minor+W2+TC	X			X				X				X				N/A				N/A					X			Res	39.2	40	
R2+Minor+W4(General)+TC	X			X				X					X			N/A				N/A					X			Res	39.6	40	
R2+Minor+W1+C1+TC	X			X				X			X			X		N/A				N/A					X			Res	48.2	49	
R2+Minor+W2+C1+TC	X			X				X				X		X		N/A				N/A					X			Res	46.2	47	
R2+Minor+W4(General)+C1+TC	X			X				X					X	X		N/A				N/A					X			Res	48.2	49	
R2+Minor+W2+C2+TC	X			X				X			X				X	N/A				N/A					X			Res	45.2	46	
R2+Minor+W2+C2+TC	X			X				X				X			X	N/A				N/A					X			Res	43.2	44	
R2+Minor+W4(General)+C2+TC	X			X				X					X		X	N/A				N/A					X			Res	45.2	46	
R2+Minor+W2+P1+TC	X			X				X			X					N/A	X			N/A					X			Res	51.2	52	
R2+Minor+W2+P2+TC	X			X				X			X					N/A		X		N/A					X			Res	47.8	48	
R2+Minor+W1+P3+TC	X			X				X			X					N/A			X	N/A					X			Res	47.8	48	
R2+Minor+W2+P1+TC	X			X				X				X				N/A	X			N/A					X			Res	49.2	50	
R2+Minor+W2+P2+TC	X			X				X				X				N/A		X		N/A					X			Res	45.8	46	
R2+Minor+W2+P3+TC	X			X				X				X				N/A			X	N/A					X			Res	48.8	49	
R2+Minor+W4(General)+P1+TC	X			X				X					X			N/A	X			N/A					X			Res	49.6	50	
R2+Minor+W4(General)+P2+TC	X			X				X					X			N/A		X		N/A					X			Res	46.2	47	
R2+Minor+W4(General)+P3+TC	X			X				X					X			N/A			X	N/A					X			Res	46.2	47	
R2+Minor+W1+C1+P1+TC	X			X				X			X			X		N/A	X			N/A					X			Res	58.2	59	
R2+Minor+W1+C1+P2+TC	X			X				X			X			X		N/A		X		N/A					X			Res	48.9	49	
R2+Minor+W2+C1+P3+TC	X			X				X			X			X		N/A			X	N/A					X			Res	46.9	47	
R2+Minor+W2+C1+P1+TC	X			X				X				X		X		N/A	X			N/A					X			Res	72.3	73	
R2+Minor+W2+C1+P2+TC	X			X				X				X		X		N/A		X		N/A					X			Res	46.9	47	
R2+Minor+W4(General)+C1+P1+TC	X			X				X					X	X		N/A	X			N/A					X			Res	58.2	59	
R2+Minor+W4(General)+C1+P2+TC	X			X				X					X	X		N/A		X		N/A					X			Res	54.8	55	
R2+Minor+W4(General)+C1+P3+TC	X			X				X					X	X		N/A			X	N/A					X			Res	54.8	55	
R2+Minor+W1+C2+P1+TC	X			X				X			X				X	N/A	X			N/A					X			Res	55.2	56	
R2+Minor+W1+C2+P2+TC	X			X				X			X				X	N/A		X		N/A					X			Res	45.9	46	
R2+Minor+W1+C2+P3+TC	X			X				X			X				X	N/A			X	N/A					X			Res	43.9	44	
R2+Minor+W2+C2+P1+TC	X			X				X				X			X	N/A	X			N/A					X			Res	53.2	54	
R2+Minor+W2+C2+P2+TC	X			X				X				X			X	N/A		X		N/A					X			Res	43.9	44	
R2+Minor+W2+C2+P3+TC	X			X				X				X			X	N/A			X	N/A					X			Res	43.9	44	
R2+Minor+W4(General)+C2+P1+TC	X			X				X					X		X	N/A	X			N/A					X			Res	55.2	56	
R2+Minor+W4(General)+C2+P2+TC	X			X				X					X		X	N/A		X		N/A					X			Res	51.8	52	
R2+Minor+W4(General)+C2+P3+TC	X			X				X					X		X	N/A			X	N/A					X			Res	51.8	52	
R2+Minor+W2+F2+TC	X			X				X			X					N/A				N/A	X	N/A			X			Res	46.9	47	
R2+Minor+W2+F2+TC	X			X				X				X				N/A				N/A	X	N/A			X			Res	44.5	45	
R2+Minor+W4(General)+F2+TC	X			X				X					X			N/A				N/A	X	N/A			X			Res	44.9	45	
R2+Minor+W1+C1+F2+TC	X			X				X			X			X		N/A				N/A	X	N/A			X			Res	53.5	54	
R2+Minor+W2+C1+F2+TC	X			X				X				X		X		N/A				N/A	X	N/A			X			Res	51.9	52	
R2+Minor+W4(General)+C1+F2+TC	X			X				X					X	X		N/A				N/A	X	N/A			X			Res	53.5	54	
R2+Minor+W1+C2+F2+TC	X			X				X			X				X	N/A				N/A	X	N/A			X			Res	50.5	51	
R2+Minor+W2+C2+F2+TC	X			X				X				X			X	N/A				N/A	X	N/A			X			Res	48.5	49	
R2+Minor+W4(General)+C2+F2+TC	X			X				X					X		X	N/A				N/A	X	N/A			X			Res	50.5	51	
R2+Minor+W1+P1+F2+TC	X			X				X			X					N/A	X			N/A	X	N/A			X			Res	56.5	57	
R2+Minor+W1+P2+F2+TC	X			X				X			X					N/A		X		N/A	X	N/A			X			Res	46.5	47	
R2+Minor+W1+P3+F2+TC	X			X				X			X					N/A			X	N/A	X	N/A			X			Res	46.9	47	
R2+Minor+W2+P1+F2+TC	X			X				X				X				N/A	X			N/A	X	N/A			X			Res	54.5	55	
R2+Minor+W2+P2+F2+TC	X			X				X				X				N/A		X		N/A	X	N/A			X			Res	44.5	45	
R2+Minor+W2+P3+F2+TC	X			X				X				X				N/A			X	N/A	X	N/A			X			Res	45.2	46	
R2+Minor+W4(General)+P1+F2+TC	X			X				X					X			N/A	X			N/A	X	N/A			X			Res	54.9	55	
R2+Minor+W4(General)+P2+F2+TC	X			X				X					X			N/A		X		N/A	X	N/A			X			Res	44.9	45	
R2+Minor+W4(General)+P3+F2+TC	X			X				X					X			N/A			X	N/A	X	N/A			X			Res	44.9	45	
R2+Minor+W1+C1+P1+F2+TC	X			X				X			X			X		N/A	X			N/A	X	N/A			X			Res	63.9	64	
R2+Minor+W1+C1+P2+F2+TC	X			X				X			X			X		N/A		X		N/A	X	N/A			X			Res	54.2	55	
R2+Minor+W1+C1+P3+F2+TC	X			X				X			X			X		N/A			X	N/A	X	N/A			X			Res	54.2	55	
R2+Minor+W2+C1+P1+F2+TC	X			X				X				X		X		N/A	X			N/A	X	N/A			X			Res	61.5	62	
R2+Minor+W2+C1+P2+F2+TC	X			X				X				X		X		N/A		X		N/A	X	N/A			X			Res	52.2	53	
R2+Minor+W2+C1+P3+F2+TC	X			X				X				X		X		N/A			X	N/A	X	N/A			X			Res	52.2	53	
R2+Minor+W4(General)+C1+P1+F2+TC	X			X				X					X	X		N/A	X			N/A	X	N/A			X			Res	63.5	64	
R2+Minor+W4(General)+C1+P2+F2+TC	X			X				X					X	X		N/A		X		N/A	X	N/A			X			Res	54.2	55	
R2+Minor+W4(General)+C1+P3+F2+TC	X			X				X					X	X		N/A			X	N/A	X	N/A			X			Res	54.2	55	
R2+Minor+W1+C2+P1+F2+TC	X			X				X			X				X	N/A	X			N/A	X	N/A			X			Res	60.8	61	

APPENDIX C

Label	Stage 1 - Road Typology									Stage 2 - Mode Specific													Stage 3 - Context Specific				Service Road / Frontage Road	Parking	Cross Section Width	Rounded Up Cross Section Width	Cross Section Specific Notes
										No specific	Walking			Cycling			Public Transport			Freight			No Specific	Capital City / Met Centre	Town Center	Economic / Industrial					
	Urban	Rural	Exp'way (R1)	Arterial (R2)	Collector (R3)	Local (R4)	Low Volume	Average Volume	High Volume		Prestige (W1)	City (W2)	General	State (C1)	City (C2)	Local (C3)	Dedicated (P1)	Priority (P2)	Local (P3)	State Sig (F1)	Major (F2)	Local (F3)									
Expressway																															
R3+Minor+W1+C2+P2+F2+TC	X			X				X			X				X	N/A		X		N/A	X	N/A			X			Res	51.2	52	
R2+Minor+W1+C2+P3+F2+TC	X			X				X			X				X	N/A			X	N/A	X	N/A			X			Res	51.2	52	
R2+Minor+W2+C2+P1+F2+TC	X			X				X				X			X	N/A	X			N/A	X	N/A			X			Res	58.5	59	
R2+Minor+W3+C2+P2+F2+TC	X			X				X				X			X	N/A		X		N/A	X	N/A			X			Res	49.2	50	
R2+Minor+W3+C2+P3+F2+TC	X			X				X				X			X	N/A			X	N/A	X	N/A			X			Res	49.2	50	
R2+Minor+Wlk(General)+C2+P1+F2+TC	X			X				X					X		X	N/A	X			N/A	X	N/A			X			Res	60.5	61	
R2+Minor+Wlk(General)+C2+P2+F2+TC	X			X				X					X		X	N/A		X		N/A	X	N/A			X			Res	51.2	52	
R2+Minor+Wlk(General)+C2+P3+F2+TC	X			X				X					X		X	N/A			X	N/A	X	N/A			X			Res	51.2	52	
R3+Minor+W1+TC	X			X				X			X					N/A				N/A		N/A			X		SR	Res	63.4	64	Service Road assumes 2m median between service road and Arterial. Service Road assumes 2 lanes in each direction plus parking - lane width 3.3 / parking 2.5
R2+Minor+W2+TC	X			X				X				X				N/A				N/A		N/A			X		SR	Res	61.4	62	
R2+Minor+Wlk(General)+TC	X			X				X					X			N/A				N/A		N/A			X		SR	Res	61.8	62	
R2+Minor+W2+C1+TC	X			X				X			X			X		N/A				N/A		N/A			X		SR	Res	70.0	71	
R2+Minor+W2+C1+TC	X			X				X				X		X		N/A				N/A		N/A			X		SR	Res	68.4	69	
R2+Minor+Wlk(General)+C1+TC	X			X				X					X	X		N/A				N/A		N/A			X		SR	Res	70.4	71	
R2+Minor+W1+C2+TC	X			X				X			X				X	N/A				N/A		N/A			X		SR	Res	67.4	68	
R2+Minor+W2+C2+TC	X			X				X				X			X	N/A				N/A		N/A			X		SR	Res	65.9	66	
R2+Minor+Wlk(General)+C2+TC	X			X				X					X		X	N/A				N/A		N/A			X		SR	Res	67.4	68	
R2+Minor+W1+P1+TC	X			X				X			X					N/A	X			N/A		N/A			X		SR	Res	73.4	74	
R2+Minor+W1+P2+TC	X			X				X			X					N/A		X		N/A		N/A			X		SR	Res	70	70	
R2+Minor+W1+P3+TC	X			X				X			X					N/A			X	N/A		N/A			X		SR	Res	70	70	
R2+Minor+W2+P1+TC	X			X				X				X				N/A	X			N/A		N/A			X		SR	Res	71.4	72	
R3+Minor+W2+P2+TC	X			X				X				X				N/A		X		N/A		N/A			X		SR	Res	68	68	
R3+Minor+W2+P3+TC	X			X				X				X				N/A			X	N/A		N/A			X		SR	Res	68	68	
R2+Minor+Wlk(General)+P1+TC	X			X				X					X			N/A	X			N/A		N/A			X		SR	Res	71.8	72	
R2+Minor+Wlk(General)+P2+TC	X			X				X					X			N/A		X		N/A		N/A			X		SR	Res	68.4	69	
R2+Minor+Wlk(General)+P3+TC	X			X				X					X			N/A			X	N/A		N/A			X		SR	Res	68.4	69	
R2+Minor+W1+C1+P1+TC	X			X				X			X			X		N/A	X			N/A		N/A			X		SR	Res	80.4	81	
R2+Minor+W1+C1+P2+TC	X			X				X			X			X		N/A		X		N/A		N/A			X		SR	Res	71.1	72	
R2+Minor+W2+C1+P3+TC	X			X				X			X			X		N/A			X	N/A		N/A			X		SR	Res	69.1	70	
R2+Minor+W2+C1+P1+TC	X			X				X				X		X		N/A	X			N/A		N/A			X		SR	Res	94.4	95	
R2+Minor+W2+C1+P2+TC	X			X				X				X		X		N/A		X		N/A		N/A			X		SR	Res	89.1	90	
R2+Minor+W2+C1+P3+TC	X			X				X				X		X		N/A			X	N/A		N/A			X		SR	Res	46.9	47	
R2+Minor+Wlk(General)+C1+P1+TC	X			X				X					X	X		N/A	X			N/A		N/A			X		SR	Res	80.4	81	
R2+Minor+Wlk(General)+C1+P2+TC	X			X				X					X	X		N/A		X		N/A		N/A			X		SR	Res	77	77	
R2+Minor+Wlk(General)+C1+P3+TC	X			X				X					X	X		N/A			X	N/A		N/A			X		SR	Res	77	77	
R2+Minor+W1+C2+P1+TC	X			X				X			X				X	N/A	X			N/A		N/A			X		SR	Res	77.4	78	
R2+Minor+W1+C2+P2+TC	X			X				X			X				X	N/A		X		N/A		N/A			X		SR	Res	68.1	69	
R2+Minor+W2+C2+P3+TC	X			X				X			X				X	N/A			X	N/A		N/A			X		SR	Res	66.1	67	
R2+Minor+W2+C2+P1+TC	X			X				X				X			X	N/A	X			N/A		N/A			X		SR	Res	75.4	76	
R2+Minor+W3+C2+P2+TC	X			X				X				X			X	N/A		X		N/A		N/A			X		SR	Res	66.1	67	
R3+Minor+W3+C2+P3+TC	X			X				X				X			X	N/A			X	N/A		N/A			X		SR	Res	66.1	67	
R2+Minor+Wlk(General)+C2+P1+TC	X			X				X					X		X	N/A	X			N/A		N/A			X		SR	Res	77.4	78	
R2+Minor+Wlk(General)+C2+P2+TC	X			X				X					X		X	N/A		X		N/A		N/A			X		SR	Res	74	74	
R2+Minor+Wlk(General)+C2+P3+TC	X			X				X					X		X	N/A			X	N/A		N/A			X		SR	Res	74	74	
R3+Minor+W1+P2+TC	X			X				X			X					N/A				N/A	X	N/A			X		SR	Res	68.7	69	
R2+Minor+W2+P2+TC	X			X				X				X				N/A				N/A	X	N/A			X		SR	Res	66.7	67	
R2+Minor+Wlk(General)+P2+TC	X			X				X					X			N/A				N/A	X	N/A			X		SR	Res	67.1	68	
R2+Minor+W2+C1+P2+TC	X			X				X			X			X		N/A				N/A	X	N/A			X		SR	Res	75.7	76	
R3+Minor+W2+C1+P3+TC	X			X				X				X		X		N/A				N/A	X	N/A			X		SR	Res	73.7	74	
R2+Minor+Wlk(General)+C1+P2+TC	X			X				X					X	X		N/A				N/A	X	N/A			X		SR	Res	75.7	76	
R2+Minor+W1+C2+P2+TC	X			X				X			X				X	N/A				N/A	X	N/A			X		SR	Res	72.7	73	
R2+Minor+W2+C2+P3+TC	X			X				X				X			X	N/A				N/A	X	N/A			X		SR	Res	70.7	71	
R2+Minor+Wlk(General)+C2+P2+TC	X			X				X					X		X	N/A				N/A	X	N/A			X		SR	Res	72.7	73	
R2+Minor+W1+P1+P2+TC	X			X				X			X					N/A	X			N/A	X	N/A			X		SR	Res	78.7	79	
R2+Minor+W1+P2+P2+TC	X			X				X			X					N/A		X		N/A	X	N/A			X		SR	Res	68.7	69	
R2+Minor+W1+P3+P2+TC	X			X				X			X					N/A			X	N/A	X	N/A			X		SR	Res	68.7	69	
R2+Minor+W2+P1+P2+TC	X			X				X				X				N/A	X			N/A	X	N/A			X		SR	Res	76.7	77	
R2+Minor+W2+P2+P2+TC	X			X				X				X				N/A		X		N/A	X	N/A			X		SR	Res	66.7	67	
R2+Minor+W2+P3+P2+TC	X			X				X				X				N/A			X	N/A	X	N/A			X		SR	Res	67.4	68	
R2+Minor+Wlk(General)+P1+P2+TC	X			X				X					X			N/A	X			N/A	X	N/A			X		SR	Res	77.1	78	
R2+Minor+Wlk(General)+P2+P2+TC	X			X				X					X			N/A		X		N/A	X	N/A			X		SR	Res	67.1	68	
R2+Minor+Wlk(General)+P3+P2+TC	X			X				X					X			N/A			X	N/A	X	N/A			X		SR	Res	67.1	68	
R2+Minor+W1+C1+P1+P2+TC	X			X				X			X			X		N/A	X			N/A	X	N/A			X		SR	Res	85.7	86	
R2+Minor+W1+C1+P2+P2+TC	X			X				X			X			X		N/A		X		N/A	X	N/A			X		SR	Res	76.4	77	
R2+Minor+W1+C1+P3+P2+TC	X			X				X			X			X		N/A			X	N/A	X	N/A			X		SR	Res	76.4	77	
R2+Minor+W2+C1+P1+P2+TC	X			X				X				X		X		N/A	X			N/A	X	N/A			X		SR	Res	83.7	84	
R2+Minor+W2+C1+P2+P2+TC	X			X				X				X		X		N/A		X		N/A	X	N/A			X		SR	Res	74.4	75	
R2+Minor+W2+C1+P3+P2+TC	X			X				X				X		X		N/A			X	N/A	X	N/A			X		SR	Res	74.4	75	
R2+Minor+Wlk(General)+C1+P1+P2+TC	X			X				X					X	X		N/A	X			N/A	X	N/A			X		SR	Res	85.7	86	
R2+Minor+Wlk(General)+C1+P2+P2+TC	X			X				X					X	X		N/A		X		N/A	X	N/A			X		SR	Res	76.4	77	
R2+Minor+Wlk(General)+C1+P3+P2+TC	X			X				X					X	X		N/A			X	N/A	X	N/A			X		SR	Res	76.4	77	
R2+Minor+W1+C2+P1+P2+TC	X			X				X			X				X	N/A	X			N/A	X	N/A			X		SR	Res	82.7	83	
R2+Minor+W1+C2+P2+P2+TC	X			X				X			X				X	N/A		X		N/A	X	N/A			X		SR	Res	73.4	74	
R2+Minor+W1+C2+P3+P2+TC	X			X				X			X				X	N/A			X	N/A	X	N/A			X		SR	Res	73.4	74	
R2+Minor+W2+C2+P1+P2+TC	X			X				X				X			X	N/A	X			N/A	X	N/A			X		SR	Res	80.7	81	
R2+Minor+W2+C2+P2+P2+TC	X			X				X				X			X	N/A		X		N/A	X	N/A			X		SR	Res	71.4	72	
R2+Minor+W2+C2+P3+P2+TC	X			X				X				X			X	N/A			X	N/A	X	N/A			X		SR	Res	71.4	72	

APPENDIX C

Label	Stage 1 - Road Typology									Stage 2 - Mode Specific													Stage 3 - Context Specific				Service Road / Frontage Road	Parking	Cross Section Width	Rounded Up Cross Section Width	Cross Section Specific Notes
										No specific	Walking			Cycling			Public Transport			Freight											
	Urban	Rural	Exp'way (R1)	Arterial (R2)	Collector (R3)	Local (R4)	Low Volume	Average Volume	High Volume		Prestige (W1)	City (W2)	General	State (C1)	City (C2)	Local (C3)	Dedicated (P1)	Priority (P2)	Local (P3)	State Sig (F1)	Major (F2)	Local F3)	No Specific	Capital City / Met Centre	Town Center	Economic / Industrial					
																												Expressway			
R2+Minor+W1#(General)+C2+P1+P2+TC	X			X				X					X		X	N/A	X			N/A	X	N/A			X		SR	Res	82.7	83	
R2+Minor+W1#(General)+C2+P2+P2+TC	X			X				X					X		X	N/A		X		N/A	X	N/A			X		SR	Res	73.4	74	
R3+Minor+W1#(General)+C3+P3+P3+TC	X			X				X					X		X	N/A			X	N/A	X	N/A			X		SR	Res	73.4	74	
R2+Minor+F2+EI	X			X				X		X						N/A				N/A	X	N/A				X		Perm	47.9	48	
R2+Minor+W1+P2+EI	X			X				X			X					N/A				N/A	X	N/A				X		Perm	61.9	62	
R2+Minor+W2+P2+EI	X			X				X				X				N/A				N/A	X	N/A				X		Perm	59.9	60	
R2+Minor+W1#(General)+P2+EI	X			X				X					X			N/A				N/A	X	N/A				X		Perm	54.3	55	
R2+Minor+W1+C1+P2+EI	X			X				X			X			X		N/A				N/A	X	N/A				X		Perm	68.9	69	
R2+Minor+W2+C1+P2+EI	X			X				X				X		X		N/A				N/A	X	N/A				X		Perm	66.9	67	
R2+Minor+W1#(General)+C1+P2+EI	X			X				X					X	X		N/A				N/A	X	N/A				X		Perm	62.9	63	
R2+Minor+W1+C2+P2+EI	X			X				X			X				X	N/A				N/A	X	N/A				X		Perm	65.9	66	
R2+Minor+W2+C2+P2+EI	X			X				X				X			X	N/A				N/A	X	N/A				X		Perm	63.9	64	
R2+Minor+W1#(General)+C2+P2+EI	X			X				X					X		X	N/A				N/A	X	N/A				X		Perm	59.9	60	
R2+Minor+W1+P1+P2+EI	X			X				X			X					N/A	X			N/A	X	N/A				X		Perm	71.9	72	
R2+Minor+W1+P2+P2+EI	X			X				X			X					N/A		X		N/A	X	N/A				X		Perm	69.2	70	
R2+Minor+W1+P2+P3+EI	X			X				X			X					N/A			X	N/A	X	N/A				X		Perm	61.9	62	
R2+Minor+W2+P1+P2+EI	X			X				X				X				N/A	X			N/A	X	N/A				X		Perm	69.9	70	
R2+Minor+W2+P2+P2+EI	X			X				X				X				N/A		X		N/A	X	N/A				X		Perm	67.2	68	
R2+Minor+W2+P2+P3+EI	X			X				X				X				N/A			X	N/A	X	N/A				X		Perm	59.9	60	
R2+Minor+W1#(General)+P1+P2+EI	X			X				X					X			N/A	X			N/A	X	N/A				X		Perm	64.3	65	
R2+Minor+W1#(General)+P2+P2+EI	X			X				X					X			N/A		X		N/A	X	N/A				X		Perm	61.6	62	
R2+Minor+W1#(General)+P2+P3+EI	X			X				X					X			N/A			X	N/A	X	N/A				X		Perm	54.3	55	
R2+Minor+W1+C1+P1+P2+EI	X			X				X			X			X		N/A	X			N/A	X	N/A				X		Perm	73.6	74	
R2+Minor+W1+C1+P2+P2+EI	X			X				X			X			X		N/A		X		N/A	X	N/A				X		Perm	76.2	77	
R2+Minor+W1+C1+P2+P3+EI	X			X				X			X			X		N/A			X	N/A	X	N/A				X		Perm	68.9	69	
R2+Minor+W2+C1+P1+P2+EI	X			X				X				X		X		N/A	X			N/A	X	N/A				X		Perm	76.9	77	
R2+Minor+W2+C1+P2+P2+EI	X			X				X				X		X		N/A		X		N/A	X	N/A				X		Perm	74.2	75	
R2+Minor+W2+C1+P2+P3+EI	X			X				X				X		X		N/A			X	N/A	X	N/A				X		Perm	66.9	67	
R2+Minor+W1#(General)+C1+P1+P2+EI	X			X				X					X	X		N/A	X			N/A	X	N/A				X		Perm	72.9	73	
R2+Minor+W1#(General)+C1+P2+P2+EI	X			X				X					X	X		N/A		X		N/A	X	N/A				X		Perm	70.2	71	
R2+Minor+W1#(General)+C1+P2+P3+EI	X			X				X					X	X		N/A			X	N/A	X	N/A				X		Perm	61.9	63	
R2+Minor+W1+C2+P1+P2+EI	X			X				X			X				X	N/A	X			N/A	X	N/A				X		Perm	70.6	71	
R2+Minor+W1+C2+P2+P2+EI	X			X				X			X				X	N/A		X		N/A	X	N/A				X		Perm	73.2	74	
R2+Minor+W1+C2+P3+P3+EI	X			X				X			X				X	N/A			X	N/A	X	N/A				X		Perm	65.9	66	
R2+Minor+W2+C2+P1+P2+EI	X			X				X				X			X	N/A	X			N/A	X	N/A				X		Perm	73.9	74	
R2+Minor+W2+C2+P2+P2+EI	X			X				X				X			X	N/A		X		N/A	X	N/A				X		Perm	71.2	72	
R2+Minor+W2+C2+P3+P3+EI	X			X				X				X			X	N/A			X	N/A	X	N/A				X		Perm	63.9	64	
R2+Minor+W1#(General)+C2+P1+P2+EI	X			X				X					X		X	N/A	X			N/A	X	N/A				X		Perm	69.9	70	
R2+Minor+W1#(General)+C2+P2+P2+EI	X			X				X					X		X	N/A		X		N/A	X	N/A				X		Perm	67.2	68	
R2+Minor+W1#(General)+C2+P3+P2+EI	X			X				X					X		X	N/A			X	N/A	X	N/A				X		Perm	61.9	63	
R2+Minor+F2+EI	X			X				X		X						N/A				N/A	X	N/A				X	SR	Perm	72.5	73	Service Road assumes 2m median between service road and Artarial. Service Road assumes 2 lanes in each direction plus parking - lane width 3.65 / parking 3m
R2+Minor+W1+P2+EI	X			X				X			X					N/A				N/A	X	N/A				X	SR	Perm	86.5	87	
R3+Minor+W2+P2+EI	X			X				X				X				N/A				N/A	X	N/A				X	SR	Perm	84.5	85	
R2+Minor+W1#(General)+P2+EI	X			X				X					X			N/A				N/A	X	N/A				X	SR	Perm	78.9	79	
R2+Minor+W1+C1+P2+EI	X			X				X			X			X		N/A				N/A	X	N/A				X	SR	Perm	93.5	94	
R3+Minor+W2+C1+P2+EI	X			X				X				X		X		N/A				N/A	X	N/A				X	SR	Perm	91.5	92	
R2+Minor+W1#(General)+C1+P2+EI	X			X				X					X	X		N/A				N/A	X	N/A				X	SR	Perm	87.5	88	
R2+Minor+W1+C2+P2+EI	X			X				X			X				X	N/A				N/A	X	N/A				X	SR	Perm	90.5	91	
R2+Minor+W2+C2+P2+EI	X			X				X				X			X	N/A				N/A	X	N/A				X	SR	Perm	88.5	89	
R2+Minor+W1#(General)+C2+P2+EI	X			X				X					X		X	N/A				N/A	X	N/A				X	SR	Perm	94.5	95	
R2+Minor+W2+P1+P2+EI	X			X				X			X					N/A	X			N/A	X	N/A				X	SR	Perm	96.5	97	
R2+Minor+W1+P2+P2+EI	X			X				X			X					N/A		X		N/A	X	N/A				X	SR	Perm	93.8	94	
R2+Minor+W1+P2+P3+EI	X			X				X			X					N/A			X	N/A	X	N/A				X	SR	Perm	86.5	87	
R2+Minor+W2+P1+P2+EI	X			X				X				X				N/A	X			N/A	X	N/A				X	SR	Perm	94.5	95	
R2+Minor+W2+P2+P2+EI	X			X				X				X				N/A		X		N/A	X	N/A				X	SR	Perm	91.8	92	
R2+Minor+W2+P2+P3+EI	X			X				X				X				N/A			X	N/A	X	N/A				X	SR	Perm	84.5	85	
R2+Minor+W1#(General)+P1+P2+EI	X			X				X					X			N/A	X			N/A	X	N/A				X	SR	Perm	88.9	89	
R2+Minor+W1#(General)+P2+P2+EI	X			X				X					X			N/A		X		N/A	X	N/A				X	SR	Perm	86.2	87	
R2+Minor+W1#(General)+P2+P3+EI	X			X				X					X			N/A			X	N/A	X	N/A				X	SR	Perm	78.9	79	
R2+Minor+W1+C1+P1+P2+EI	X			X				X			X			X		N/A	X			N/A	X	N/A				X	SR	Perm	98.2	99	
R2+Minor+W1+C1+P2+P2+EI	X			X				X			X			X		N/A		X		N/A	X	N/A				X	SR	Perm	100.8	101	
R2+Minor+W1+C1+P2+P3+EI	X			X				X			X			X		N/A			X	N/A	X	N/A				X	SR	Perm	93.5	94	
R2+Minor+W2+C1+P1+P2+EI	X			X				X				X		X		N/A	X			N/A	X	N/A				X	SR	Perm	101.5	102	
R2+Minor+W2+C1+P2+P2+EI	X			X				X				X		X		N/A		X		N/A	X	N/A				X	SR	Perm	98.8	99	
R2+Minor+W2+C1+P2+P3+EI	X			X				X				X		X		N/A			X	N/A	X	N/A				X	SR	Perm	91.5	92	
R3+Minor+W1#(General)+C1+P1+P2+EI	X			X				X					X	X		N/A	X			N/A	X	N/A				X	SR	Perm	97.5	98	
R2+Minor+W1#(General)+C1+P2+P2+EI	X			X				X					X	X		N/A		X		N/A	X	N/A				X	SR	Perm	94.8	95	
R2+Minor+W1#(General)+C1+P2+P3+EI	X			X				X					X	X		N/A			X	N/A	X	N/A				X	SR	Perm	87.5	88	
R2+Minor+W1+C2+P1+P2+EI	X			X				X			X				X	N/A	X			N/A	X	N/A				X	SR	Perm	95.2	96	
R2+Minor+W1+C2+P2+P2+EI	X			X				X			X				X	N/A		X		N/A	X	N/A				X	SR	Perm	97.8	98	
R2+Minor+W1+C2+P2+P3+EI	X			X				X			X				X	N/A			X	N/A	X	N/A				X	SR	Perm	90.5	91	
R2+Minor+W2+C2+P1+P2+EI	X			X				X				X			X	N/A	X			N/A	X	N/A				X	SR	Perm	98.5	99	
R2+Minor+W2+C2+P2+P2+EI	X			X				X				X			X	N/A		X		N/A	X	N/A				X	SR	Perm	95.8	96	
R2+Minor+W2+C2+P3+P2+EI	X			X				X				X			X	N/A			X	N/A	X	N/A				X	SR	Perm	88.5	89	
R3+Minor+W1#(General)+C2+P1+P2+EI	X			X				X					X		X	N/A	X			N/A	X	N/A				X	SR	Perm	94.5	95	
R2+Minor+W1#(General)+C2+P2+P2+EI	X			X				X					X		X	N/A		X		N/A	X	N/A				X	SR	Perm	91.8	92	
R3+Minor+W1#(General)+C2+P3+P2+EI	X			X				X					X		X	N/A			X	N/A	X	N/A				X	SR	Perm	87.5	88	

Typical Cross Sections

Label	Stage 1 - Road Typology									Stage 2 - Mode Specific													Stage 3 - Context Specific				Service Road / Frontage Road	Parking	Cross Section Width	Rounded Up Cross Section Width	Cross Section Specific Notes
											Walking			Cycling			Public Transport			Freight											
	Urban	Rural	Exp'way (R1)	Arterial (R2)	Collector (R3)	Local (R4)	Low Volume	Average Volume	High Volume	No specific	Prestige (W1)	City (W2)	General	State (C1)	City (C2)	Local (C3)	Dedicated (P1)	Priority (P2)	Local (P3)	State Sig (F1)	Major (F2)	Local (F3)	No Specific	Capital City / Met Centre	Town Center	Economic / Industrial					
Expressway																															
R2+Blv+W1+Cap/Met/TC	X			X			X				X					N/A				N/A	N/A	N/A	N/A	X		N/A		Res	43.3	43	
R2+Blv+W2+Cap/Met/TC	X			X			X					X				N/A				N/A	N/A	N/A	N/A	X		N/A		Res	39.2	40	
R2+Blv+W3(General)+Cap/Met/TC	X			X			X						X			N/A				N/A	N/A	N/A	N/A	X		N/A		Res	39.6	40	
R2+Blv+W1+C1+Cap/Met/TC	X			X			X				X			X		N/A				N/A	N/A	N/A	N/A	X		N/A		Res	48.2	49	
R2+Blv+W2+C1+Cap/Met/TC	X			X			X					X		X		N/A				N/A	N/A	N/A	N/A	X		N/A		Res	46.2	47	
R2+Blv+W3+Walk(Other)+C1+Cap/Met/TC	X			X			X						X	X		N/A				N/A	N/A	N/A	N/A	X		N/A		Res	48.2	49	
R2+Blv+W1+C2+Cap/Met/TC	X			X			X				X				X	N/A				N/A	N/A	N/A	N/A	X		N/A		Res	45.2	46	
R2+Blv+W2+C2+Cap/Met/TC	X			X			X					X			X	N/A				N/A	N/A	N/A	N/A	X		N/A		Res	43.2	44	
R2+Blv+Walk(Other)+C2+Cap/Met/TC	X			X			X						X		X	N/A				N/A	N/A	N/A	N/A	X		N/A		Res	45.2	46	
R2+Blv+W1+P1+Cap/Met/TC	X			X			X				X					N/A	X			N/A	N/A	N/A	N/A	X		N/A		Res	51.2	52	
R2+Blv+W1+P2+Cap/Met/TC	X			X			X				X					N/A		X		N/A	N/A	N/A	N/A	X		N/A		Res	41.9	42	
R2+Blv+W1+P3+Cap/Met/TC	X			X			X				X					N/A			X	N/A	N/A	N/A	N/A	X		N/A		Res	41.8	42	
R2+Blv+W2+P1+Cap/Met/TC	X			X			X					X				N/A	X			N/A	N/A	N/A	N/A	X		N/A		Res	49.2	50	
R2+Blv+W2+P2+Cap/Met/TC	X			X			X					X				N/A		X		N/A	N/A	N/A	N/A	X		N/A		Res	39.9	40	
R2+Blv+W2+P3+Cap/Met/TC	X			X			X					X				N/A			X	N/A	N/A	N/A	N/A	X		N/A		Res	39.9	40	
R2+Blv+W3(General)+P1+Cap/Met/TC	X			X			X						X			N/A	X			N/A	N/A	N/A	N/A	X		N/A		Res	49.6	50	
R2+Blv+W3(General)+P2+Cap/Met/TC	X			X			X						X			N/A		X		N/A	N/A	N/A	N/A	X		N/A		Res	40.3	41	
R2+Blv+W3(General)+P3+Cap/Met/TC	X			X			X						X			N/A			X	N/A	N/A	N/A	N/A	X		N/A		Res	40.3	41	
R2+Blv+W1+C1+P1+Cap/Met/TC	X			X			X				X			X		N/A	X			N/A	N/A	N/A	N/A	X		N/A		Res	58.2	59	
R2+Blv+W1+C1+P2+Cap/Met/TC	X			X			X				X			X		N/A		X		N/A	N/A	N/A	N/A	X		N/A		Res	48.9	49	
R2+Blv+W1+C1+P3+Cap/Met/TC	X			X			X				X			X		N/A			X	N/A	N/A	N/A	N/A	X		N/A		Res	48.8	49	
R2+Blv+W2+C1+P1+Cap/Met/TC	X			X			X					X		X		N/A	X			N/A	N/A	N/A	N/A	X		N/A		Res	56.2	57	
R2+Blv+W2+C1+P2+Cap/Met/TC	X			X			X					X		X		N/A		X		N/A	N/A	N/A	N/A	X		N/A		Res	46.9	47	
R2+Blv+W2+C1+P3+Cap/Met/TC	X			X			X					X		X		N/A			X	N/A	N/A	N/A	N/A	X		N/A		Res	39.6	40	
R2+Blv+W3(General)+C1+P1+Cap/Met/TC	X			X			X						X	X		N/A	X			N/A	N/A	N/A	N/A	X		N/A		Res	58.2	59	
R2+Blv+W3(General)+C1+P2+Cap/Met/TC	X			X			X						X	X		N/A		X		N/A	N/A	N/A	N/A	X		N/A		Res	48.9	49	
R2+Blv+W3(General)+C1+P3+Cap/Met/TC	X			X			X						X	X		N/A			X	N/A	N/A	N/A	N/A	X		N/A		Res	41.6	42	
R2+Blv+W1+C2+P1+Cap/Met/TC	X			X			X				X				X	N/A	X			N/A	N/A	N/A	N/A	X		N/A		Res	55.2	56	
R2+Blv+W1+C2+P2+Cap/Met/TC	X			X			X				X				X	N/A		X		N/A	N/A	N/A	N/A	X		N/A		Res	45.9	46	
R2+Blv+W1+C2+P3+Cap/Met/TC	X			X			X				X				X	N/A			X	N/A	N/A	N/A	N/A	X		N/A		Res	38.6	39	
R2+Blv+W2+C1+P1+Cap/Met/TC	X			X			X					X			X	N/A	X			N/A	N/A	N/A	N/A	X		N/A		Res	54.2	54	
R2+Blv+W2+C2+P2+Cap/Met/TC	X			X			X					X			X	N/A		X		N/A	N/A	N/A	N/A	X		N/A		Res	43.9	44	
R2+Blv+W2+C2+P3+Cap/Met/TC	X			X			X					X			X	N/A			X	N/A	N/A	N/A	N/A	X		N/A		Res	36.6	37	
R2+Blv+W3(General)+C2+P1+Cap/Met/TC	X			X			X						X		X	N/A	X			N/A	N/A	N/A	N/A	X		N/A		Res	55.2	56	
R2+Blv+W3(General)+C2+P2+Cap/Met/TC	X			X			X						X		X	N/A		X		N/A	N/A	N/A	N/A	X		N/A		Res	45.9	46	
R2+Blv+W3(General)+C2+P3+Cap/Met/TC	X			X			X						X		X	N/A			X	N/A	N/A	N/A	N/A	X		N/A		Res	38.6	39	
R3+Blv+W1+Cap/Met/TC	X			X			X				X					N/A				N/A	N/A	N/A	N/A	X		N/A	SR	Res	63.4	64	Service Road assumes 3m median between service road and Boulevard. Service Road assumes 2 lanes in each direction plus parking - lane width 3.3 / parking 2.5m
R3+Blv+W2+Cap/Met/TC	X			X			X					X				N/A				N/A	N/A	N/A	N/A	X		N/A	SR	Res	61.4	62	
R3+Blv+W3(General)+Cap/Met/TC	X			X			X						X			N/A				N/A	N/A	N/A	N/A	X		N/A	SR	Res	61.8	62	
R2+Blv+W1+C1+Cap/Met/TC	X			X			X				X			X		N/A				N/A	N/A	N/A	N/A	X		N/A	SR	Res	70.4	71	
R2+Blv+W2+C1+Cap/Met/TC	X			X			X					X		X		N/A				N/A	N/A	N/A	N/A	X		N/A	SR	Res	68.4	69	
R2+Blv+Walk(Other)+C1+Cap/Met/TC	X			X			X						X	X		N/A				N/A	N/A	N/A	N/A	X		N/A	SR	Res	70.4	71	
R2+Blv+W1+C2+Cap/Met/TC	X			X			X				X				X	N/A				N/A	N/A	N/A	N/A	X		N/A	SR	Res	67.4	68	
R2+Blv+W2+C2+Cap/Met/TC	X			X			X					X			X	N/A				N/A	N/A	N/A	N/A	X		N/A	SR	Res	65.4	66	
R2+Blv+Walk(Other)+C2+Cap/Met/TC	X			X			X						X		X	N/A				N/A	N/A	N/A	N/A	X		N/A	SR	Res	67.4	68	
R2+Blv+W1+P1+Cap/Met/TC	X			X			X				X					N/A	X			N/A	N/A	N/A	N/A	X		N/A	SR	Res	72.4	73	
R2+Blv+W1+P2+Cap/Met/TC	X			X			X				X					N/A		X		N/A	N/A	N/A	N/A	X		N/A	SR	Res	64.1	65	
R2+Blv+W1+P3+Cap/Met/TC	X			X			X				X					N/A			X	N/A	N/A	N/A	N/A	X		N/A	SR	Res	64.1	65	
R2+Blv+W2+P1+Cap/Met/TC	X			X			X					X				N/A	X			N/A	N/A	N/A	N/A	X		N/A	SR	Res	71.4	72	
R2+Blv+W2+P2+Cap/Met/TC	X			X			X					X				N/A		X		N/A	N/A	N/A	N/A	X		N/A	SR	Res	62.1	63	
R2+Blv+W2+P3+Cap/Met/TC	X			X			X					X				N/A			X	N/A	N/A	N/A	N/A	X		N/A	SR	Res	62.1	63	
R3+Blv+W3(General)+P1+Cap/Met/TC	X			X			X						X			N/A	X			N/A	N/A	N/A	N/A	X		N/A	SR	Res	71.8	72	
R3+Blv+W3(General)+P2+Cap/Met/TC	X			X			X						X			N/A		X		N/A	N/A	N/A	N/A	X		N/A	SR	Res	62.5	63	
R3+Blv+W3(General)+P3+Cap/Met/TC	X			X			X						X			N/A			X	N/A	N/A	N/A	N/A	X		N/A	SR	Res	62.5	63	
R2+Blv+W1+C1+P1+Cap/Met/TC	X			X			X				X			X		N/A	X			N/A	N/A	N/A	N/A	X		N/A	SR	Res	80.4	81	
R2+Blv+W1+C1+P2+Cap/Met/TC	X			X			X				X			X		N/A		X		N/A	N/A	N/A	N/A	X		N/A	SR	Res	71.1	72	
R2+Blv+W1+C1+P3+Cap/Met/TC	X			X			X				X			X		N/A			X	N/A	N/A	N/A	N/A	X		N/A	SR	Res	63.8	64	
R2+Blv+W2+C1+P1+Cap/Met/TC	X			X			X					X		X		N/A	X			N/A	N/A	N/A	N/A	X		N/A	SR	Res	78.4	79	
R2+Blv+W2+C1+P2+Cap/Met/TC	X			X			X					X		X		N/A		X		N/A	N/A	N/A	N/A	X		N/A	SR	Res	69.1	70	
R2+Blv+W2+C1+P3+Cap/Met/TC	X			X			X					X		X		N/A			X	N/A	N/A	N/A	N/A	X		N/A	SR	Res	61.8	62	
R3+Blv+W3(General)+C1+P1+Cap/Met/TC	X			X			X						X	X		N/A	X			N/A	N/A	N/A	N/A	X		N/A	SR	Res	80.4	81	
R2+Blv+W3(General)+C1+P2+Cap/Met/TC	X			X			X						X	X		N/A		X		N/A	N/A	N/A	N/A	X		N/A	SR	Res	71.1	72	
R2+Blv+W3(General)+C1+P3+Cap/Met/TC	X			X			X						X	X		N/A			X	N/A	N/A	N/A	N/A	X		N/A	SR	Res	63.8	64	
R2+Blv+W1+C2+P1+Cap/Met/TC	X			X			X				X				X	N/A	X			N/A	N/A	N/A	N/A	X		N/A	SR	Res	77.4	78	
R2+Blv+W1+C2+P2+Cap/Met/TC	X			X			X				X				X	N/A		X		N/A	N/A	N/A	N/A	X		N/A	SR	Res	68.1	69	
R2+Blv+W1+C2+P3+Cap/Met/TC	X			X			X				X				X	N/A			X	N/A	N/A	N/A	N/A	X		N/A	SR	Res	60.8	61	
R2+Blv+W2+C2+P1+Cap/Met/TC	X			X			X					X			X	N/A	X			N/A	N/A	N/A	N/A	X		N/A	SR	Res	75.4	76	
R2+Blv+W2+C2+P2+Cap/Met/TC	X			X			X					X			X	N/A		X		N/A	N/A	N/A	N/A	X		N/A	SR	Res	66.1	67	
R2+Blv+W2+C2+P3+Cap/Met/TC	X			X			X					X			X	N/A			X	N/A	N/A	N/A	N/A	X		N/A	SR	Res	58.8	59	
R2+Blv+W3(General)+C2+P1+Cap/Met/TC	X			X			X						X		X	N/A	X			N/A	N/A	N/A	N/A	X		N/A	SR	Res	77.4	78	
R2+Blv+W3(General)+C2+P2+Cap/Met/TC	X			X			X						X		X	N/A		X		N/A	N/A	N/A	N/A	X		N/A	SR	Res	68.1	69	
R2+Blv+W3(General)+C2+P3+Cap/Met/TC	X			X			X						X		X	N/A			X	N/A	N/A	N/A	N/A	X		N/A	SR	Res	60.8	61	
Collector																															
							Minor	Major	Distributor																							
R3+Dist+Wlk(General)	X				X				X		N/A	N/A	X	N/A			N/A			N/A			X	N/A	N/A	N/A		Pro	8.25	9	
R3+Dist+Walk(Other)+C2	X				X				X		N/A	N/A	X	N/A	X		N/A			N/A			X	N/A	N/A	N/A		Pro	14.05	15	
R3+Dist+Walk(Other)+C3	X				X				X		N/A	N/A	X	N/A		X	N/A			N/A			X	N/A	N/A	N/A		Pro	9.95	10	

Label	Stage 1 - Road Typology									Stage 2 - Mode Specific												Stage 3 - Context Specific				Service Road / Frontage Road	Parking	Cross Section Width	Rounded Up Cross Section Width	Cross Section Specific Notes
											Walking			Cycling			Public Transport			Freight											
	Urban	Rural	Exp'way (R1)	Arterial (R2)	Collector (R3)	Local (R4)	Low Volume	Average Volume	High Volume	No specific	Prestige (W1)	City (W2)	General	State (C1)	City (C2)	Local (C3)	Dedicated (P1)	Priority (P2)	Local (P3)	State Sig. (F1)	Major (F2)	Local F3	No Specific	Capital City / Met Centre	Town Center	Economic / Industrial					
Expressway																														
R3+Dist+Walk(Other)+P2	X				X				X		N/A	N/A	X	N/A			N/A	X		N/A			X	N/A	N/A	N/A		Pro	11.9	12	
R3+Dist+Walk(Other)+P3	X				X				X		N/A	N/A	X	N/A			N/A		X	N/A			X	N/A	N/A	N/A		Pro	8.25	9	
R3+Dist+Walk(Other)+C2+P2	X				X				X		N/A	N/A	X	N/A	X		N/A	X		N/A			X	N/A	N/A	N/A		Pro	20.7	21	
R3+Dist+Walk(Other)+C2+P3	X				X				X		N/A	N/A	X	N/A	X		N/A		X	N/A			X	N/A	N/A	N/A		Pro	17.05	18	
R3+Dist+Walk(Other)+C3+P2	X				X				X		N/A	N/A	X	N/A		X	N/A	X		N/A			X	N/A	N/A	N/A		Pro	13.2	14	
R3+Dist+Walk(Other)+C3+P3	X				X				X		N/A	N/A	X	N/A		X	N/A		X	N/A			X	N/A	N/A	N/A		Pro	9.55	10	Cross Sections assume walk / cycle route on one side of the road
R3+Dist+P2	X				X				X	X	N/A	N/A		N/A			N/A			N/A	X		X	N/A	N/A	N/A		Pro	10.35	11	
R3+Dist+Walk(General)+P2	X				X				X		N/A	N/A	X	N/A			N/A			N/A	X		X	N/A	N/A	N/A		Pro	13.55	14	
R3+Dist+Walk(Other)+C2+P2	X				X				X		N/A	N/A	X	N/A	X		N/A			N/A	X		X	N/A	N/A	N/A		Pro	19.35	20	
R3+Dist+Walk(Other)+C3+P2	X				X				X		N/A	N/A	X	N/A		X	N/A			N/A	X		X	N/A	N/A	N/A		Pro	14.55	15	
R3+Dist+Walk(Other)+P3+P2	X				X				X		N/A	N/A	X	N/A			N/A	X		N/A	X		X	N/A	N/A	N/A		Pro	14.65	15	
R3+Dist+Walk(Other)+P3+P2	X				X				X		N/A	N/A	X	N/A			N/A		X	N/A	X		X	N/A	N/A	N/A		Pro	21	21	
R3+Dist+Walk(Other)+C2+P2+P2	X				X				X		N/A	N/A	X	N/A	X		N/A	X		N/A	X		X	N/A	N/A	N/A		Pro	20.66	21	
R3+Dist+Walk(Other)+C2+P3+P2	X				X				X		N/A	N/A	X	N/A	X		N/A		X	N/A	X		X	N/A	N/A	N/A		Pro	17	17	
R3+Dist+Walk(Other)+C3+P2+P2	X				X				X		N/A	N/A	X	N/A		X	N/A	X		N/A	X		X	N/A	N/A	N/A		Pro	18.2	19	
R3+Dist+Walk(Other)+C3+P3+P2	X				X				X		N/A	N/A	X	N/A		X	N/A		X	N/A	X		X	N/A	N/A	N/A		Pro	14.55	15	
R3+Dist+Walk(General)	X				X				X		N/A	N/A	X	N/A			N/A			N/A			X	N/A	N/A	N/A	SR	Pro	16.4	17	Service Road assumes 2m median between service road and Collector Distributor. Service Road assumes 1 lane plus parking - lane width 3.65 / parking 2.5m
R3+Dist+Walk(Other)+C2	X				X				X		N/A	N/A	X	N/A	X		N/A			N/A			X	N/A	N/A	N/A	SR	Pro	21.2	23	
R3+Dist+Walk(Other)+C3	X				X				X		N/A	N/A	X	N/A		X	N/A			N/A			X	N/A	N/A	N/A	SR	Pro	17.7	18	
R3+Dist+Walk(Other)+P2	X				X				X		N/A	N/A	X	N/A			N/A	X		N/A			X	N/A	N/A	N/A	SR	Pro	20.05	21	
R3+Dist+Walk(Other)+P3	X				X				X		N/A	N/A	X	N/A			N/A		X	N/A			X	N/A	N/A	N/A	SR	Pro	16.4	17	
R3+Dist+Walk(Other)+C2+P2	X				X				X		N/A	N/A	X	N/A	X		N/A	X		N/A			X	N/A	N/A	N/A	SR	Pro	28.05	29	
R3+Dist+Walk(Other)+C2+P3	X				X				X		N/A	N/A	X	N/A	X		N/A		X	N/A			X	N/A	N/A	N/A	SR	Pro	25.2	25	
R3+Dist+Walk(Other)+C3+P2	X				X				X		N/A	N/A	X	N/A		X	N/A	X		N/A			X	N/A	N/A	N/A	SR	Pro	21.85	22	
R3+Dist+Walk(Other)+C3+P3	X				X				X		N/A	N/A	X	N/A		X	N/A		X	N/A			X	N/A	N/A	N/A	SR	Pro	17.7	18	
R3+Dist+P2	X				X				X	X	N/A	N/A		N/A			N/A			N/A	X		X	N/A	N/A	N/A	SR	Pro	18.5	19	
R3+Dist+Walk(General)+P2	X				X				X		N/A	N/A	X	N/A			N/A			N/A	X		X	N/A	N/A	N/A	SR	Pro	21.7	22	
R3+Dist+Walk(Other)+C2+P2	X				X				X		N/A	N/A	X	N/A	X		N/A	X		N/A	X		X	N/A	N/A	N/A	SR	Pro	27.5	28	
R3+Dist+Walk(Other)+C3+P2	X				X				X		N/A	N/A	X	N/A		X	N/A	X		N/A	X		X	N/A	N/A	N/A	SR	Pro	22.7	23	
R3+Dist+Walk(Other)+P2+P2	X				X				X		N/A	N/A	X	N/A			N/A	X		N/A	X		X	N/A	N/A	N/A	SR	Pro	22.8	23	
R3+Dist+Walk(Other)+P3+P2	X				X				X		N/A	N/A	X	N/A			N/A		X	N/A	X		X	N/A	N/A	N/A	SR	Pro	28.35	29	
R3+Dist+Walk(Other)+C2+P2+P2	X				X				X		N/A	N/A	X	N/A	X		N/A	X		N/A	X		X	N/A	N/A	N/A	SR	Pro	28.8	29	
R3+Dist+Walk(Other)+C2+P3+P2	X				X				X		N/A	N/A	X	N/A	X		N/A		X	N/A	X		X	N/A	N/A	N/A	SR	Pro	25.15	26	
R3+Dist+Walk(Other)+C3+P2+P2	X				X				X		N/A	N/A	X	N/A		X	N/A	X		N/A	X		X	N/A	N/A	N/A	SR	Pro	26.35	27	
R3+Dist+Walk(Other)+C3+P3+P2	X				X				X		N/A	N/A	X	N/A		X	N/A		X	N/A	X		X	N/A	N/A	N/A	SR	Pro	22.7	23	
R3+Mjr+W1	X				X			X			X			N/A			N/A			N/A			X					Res	43.3	44	
R3+Mjr+W2	X				X			X				X		N/A			N/A			N/A			X					Res	41.3	42	
R3+Mjr+Walk(Other)	X				X			X					X	N/A			N/A			N/A			X					Res	35.7	36	
R3+Mjr+W2+C2	X				X			X			X			N/A	X		N/A			N/A			X					Res	47.8	48	
R3+Mjr+W1+C3	X				X			X			X			N/A		X	N/A			N/A			X					Res	43.3	44	
R3+Mjr+W2+C2	X				X			X				X		N/A	X		N/A			N/A			X					Res	45.5	46	
R3+Mjr+W2+C3	X				X			X				X		N/A		X	N/A			N/A			X					Res	41.3	42	
R3+Mjr+Walk(Other)+C2	X				X			X					X	N/A	X		N/A			N/A			X					Res	41.8	42	
R3+Mjr+Walk(Other)+C3	X				X			X					X	N/A		X	N/A			N/A			X					Res	38.3	39	
R3+Mjr+W1+P2	X				X			X			X			N/A			N/A	X		N/A			X					Res	50.6	51	
R3+Mjr+W1+P3	X				X			X			X			N/A			N/A		X	N/A			X					Res	43.3	44	
R3+Mjr+W2+P2	X				X			X				X		N/A			N/A	X		N/A			X					Res	48.6	49	
R3+Mjr+W2+P3	X				X			X				X		N/A			N/A		X	N/A			X					Res	41.3	42	
R3+Mjr+Wlk(General)+P2	X				X			X					X	N/A			N/A	X		N/A			X					Res	43	43	
R3+Mjr+Wlk(General)+P3	X				X			X					X	N/A			N/A		X	N/A			X					Res	35.7	36	
R3+Mjr+W2+C2+P2	X				X			X			X			N/A	X		N/A	X		N/A			X					Res	54.6	55	
R3+Mjr+W1+C3+P3	X				X			X			X			N/A		X	N/A		X	N/A			X					Res	47.3	48	
R3+Mjr+W2+C2+P2	X				X			X				X		N/A	X		N/A	X		N/A			X					Res	52.6	53	
R3+Mjr+W2+C2+P3	X				X			X				X		N/A	X		N/A		X	N/A			X					Res	45.3	46	
R3+Mjr+Wlk(General)+C2+P2	X				X			X					X	N/A	X		N/A	X		N/A			X					Res	48.6	49	
R3+Mjr+Wlk(General)+C2+P3	X				X			X					X	N/A	X		N/A		X	N/A			X					Res	41.3	42	
R3+Mjr+W1+C3+P2	X				X			X			X			N/A		X	N/A	X		N/A			X					Res	50.6	51	
R3+Mjr+W1+C3+P3	X				X			X			X			N/A		X	N/A		X	N/A			X					Res	43.3	44	
R3+Mjr+W2+C3+P2	X				X			X				X		N/A		X	N/A	X		N/A			X					Res	48.6	49	
R3+Mjr+W2+C3+P3	X				X			X				X		N/A		X	N/A		X	N/A			X					Res	41.3	42	
R3+Mjr+Wlk(General)+C3+P2	X				X			X					X	N/A		X	N/A	X		N/A			X					Res	48.6	49	
R3+Mjr+Wlk(General)+C3+P3	X				X			X					X	N/A		X	N/A		X	N/A			X					Res	41.3	42	
R3+Mjr+W1	X				X			X			X			N/A			N/A			N/A			X				SR	Res	66.9	67	Service Road assumes 2m median between service road and Collector. Service Road assumes 2 lane in each direction plus parking - lane width 3.65
R3+Mjr+W2	X				X			X				X		N/A			N/A			N/A			X				SR	Res	64.9	65	
R3+Mjr+Walk(Other)	X				X			X					X	N/A			N/A			N/A			X				SR	Res	59.3	60	
R3+Mjr+W2+C2	X				X			X			X			N/A	X		N/A			N/A			X				SR	Res	70.9	71	
R3+Mjr+W1+C3	X				X			X			X			N/A		X	N/A			N/A			X				SR	Res	66.9	67	
R3+Mjr+W2+C2	X				X			X				X		N/A	X		N/A			N/A			X				SR	Res	68.9	69	
R3+Mjr+W2+C3	X				X			X				X		N/A		X	N/A			N/A			X				SR	Res	64.9	65	
R3+Mjr+Walk(Other)+C2	X				X			X					X	N/A	X		N/A			N/A			X				SR	Res	64.9	65	
R3+Mjr+Walk(Other)+C3	X				X			X					X	N/A		X	N/A			N/A			X				SR	Res	61.9	62	
R3+Mjr+W1+P2	X				X			X			X			N/A			N/A	X		N/A			X				SR	Res	74.2	75	
R3+Mjr+W1+P3	X				X			X			X			N/A			N/A		X	N/A			X				SR	Res	66.9	67	
R3+Mjr+W2+P2	X				X			X				X		N/A			N/A	X		N/A			X				SR	Res	72.2	73	
R3+Mjr+W2+P3	X				X			X				X		N/A			N/A		X	N/A			X				SR	Res	64.9	65	
R3+Mjr+Wlk(General)+P2	X				X			X					X	N/A			N/A	X		N/A			X				SR	Res	66.6	67	
R3+Mjr+Wlk(General)+P3	X				X			X					X	N/A			N/A		X	N/A			X				SR	Res	59.3	60	

Label	Stage 1 - Road Typology									Stage 2 - Mode Specific													Stage 3 - Context Specific				Service Road / Frontage Road	Parking	Cross Section Width	Rounded Up Cross Section Width	Cross Section Specific Notes
										No specific	Walking			Cycling			Public Transport			Freight			No Specific	Capital City / Met Centre	Town Center	Economic / Industrial					
	Urban	Rural	Exp/way (R1)	Arterial (R2)	Collector (R3)	Local (R4)	Low Volume	Average Volume	High Volume		Prestige (W1)	City (W2)	General	State (C1)	City (C2)	Local (C3)	Dedicated (P1)	Priority (P2)	Local (P3)	State Sig (F1)	Major (F2)	Local F3)									
Expressway																															
R1+Mjr+W1+C2+P2	X				X			X			X			N/A	X		N/A	X		N/A			X				SR	Res	78.2	79	
R2+Mjr+W1+C2+P3	X				X			X			X			N/A	X		N/A		X	N/A			X				SR	Res	70.9	71	
R2+Mjr+W2+C2+P2	X				X			X				X		N/A	X		N/A	X		N/A			X				SR	Res	76.2	77	
R3+Mjr+W2+C2+P3	X				X			X				X		N/A	X		N/A		X	N/A			X				SR	Res	68.9	69	
R3+Mjr+Wlk(General)+C2+P2	X				X			X					X	N/A	X		N/A	X		N/A			X				SR	Res	72.2	73	
R2+Mjr+Wlk(General)+C2+P3	X				X			X					X	N/A	X		N/A		X	N/A			X				SR	Res	64.9	65	
R1+Mjr+W1+C3+P2	X				X			X			X			N/A		X	N/A	X		N/A			X				SR	Res	74.2	75	
R1+Mjr+W1+C3+P3	X				X			X			X			N/A		X	N/A		X	N/A			X				SR	Res	66.9	67	
R2+Mjr+W2+C3+P2	X				X			X				X		N/A		X	N/A	X		N/A			X				SR	Res	72.2	73	
R3+Mjr+W2+C3+P3	X				X			X				X		N/A		X	N/A		X	N/A			X				SR	Res	64.9	65	
R3+Mjr+Wlk(General)+C3+P2	X				X			X					X	N/A		X	N/A	X		N/A			X				SR	Res	72.2	73	
R2+Mjr+Wlk(General)+C3+P3	X				X			X					X	N/A		X	N/A		X	N/A			X				SR	Res	64.9	65	
R1+Mjr+W1+Cap/Met	X				X			X			X			N/A			N/A			N/A				X				Perm	39.6	40	
R2+Mjr+W2+Cap/Met	X				X			X				X		N/A			N/A			N/A				X				Perm	37.6	38	
R2+Mjr+Walk(Other)+Cap/Met	X				X			X					X	N/A			N/A			N/A				X				Perm	38	38	
R1+Mjr+W1+C2+Cap/Met	X				X			X			X			N/A	X		N/A			N/A				X				Perm	43.6	44	
R2+Mjr+W1+C3+Cap/Met	X				X			X			X			N/A		X	N/A			N/A				X				Perm	39.6	40	
R2+Mjr+W2+C2+Cap/Met	X				X			X				X		N/A	X		N/A			N/A				X				Perm	41.6	42	
R3+Mjr+W2+C3+Cap/Met	X				X			X				X		N/A		X	N/A			N/A				X				Perm	25.6	26	
R3+Mjr+Walk(Other)+C2+Cap/Met	X				X			X					X	N/A	X		N/A			N/A				X				Perm	43.6	44	
R2+Mjr+Walk(Other)+C3+Cap/Met	X				X			X					X	N/A		X	N/A			N/A				X				Perm	38.6	39	
R3+Mjr+W1+P2+Cap/Met	X				X			X			X			N/A			N/A	X		N/A				X				Perm	40.3	41	
R3+Mjr+W1+P3+Cap/Met	X				X			X			X			N/A			N/A		X	N/A				X				Perm	40.3	41	
R2+Mjr+W2+P2+Cap/Met	X				X			X				X		N/A			N/A	X		N/A				X				Perm	38.3	39	
R3+Mjr+W2+P3+Cap/Met	X				X			X				X		N/A			N/A		X	N/A				X				Perm	38.3	39	
R3+Mjr+Walk(Other)+P2+Cap/Met	X				X			X					X	N/A			N/A	X		N/A				X				Perm	38.7	39	
R2+Mjr+Walk(Other)+P3+Cap/Met	X				X			X					X	N/A			N/A		X	N/A				X				Perm	38.7	39	
R1+Mjr+W1+C2+P2+Cap/Met	X				X			X			X			N/A	X		N/A	X		N/A				X				Perm	44.3	45	
R2+Mjr+W1+C2+P3+Cap/Met	X				X			X			X			N/A	X		N/A		X	N/A				X				Perm	37	37	
R2+Mjr+W2+C2+P2+Cap/Met	X				X			X				X		N/A	X		N/A	X		N/A				X				Perm	42.3	43	
R2+Mjr+W2+C2+P3+Cap/Met	X				X			X				X		N/A	X		N/A		X	N/A				X				Perm	42.3	43	
R3+Mjr+Wlk(General)+C2+P2+Cap/Met	X				X			X					X	N/A	X		N/A	X		N/A				X				Perm	44.3	45	
R2+Mjr+Wlk(General)+C2+P3+Cap/Met	X				X			X					X	N/A	X		N/A		X	N/A				X				Perm	44.3	45	
R1+Mjr+W1+C3+P2+Cap/Met	X				X			X			X			N/A		X	N/A	X		N/A				X				Perm	40.3	41	
R1+Mjr+W1+C3+P3+Cap/Met	X				X			X			X			N/A		X	N/A		X	N/A				X				Perm	40.3	41	
R2+Mjr+W2+C3+P2+Cap/Met	X				X			X				X		N/A		X	N/A	X		N/A				X				Perm	38.3	39	
R3+Mjr+W2+C3+P3+Cap/Met	X				X			X				X		N/A		X	N/A		X	N/A				X				Perm	38.3	39	
R3+Mjr+Wlk(General)+C3+P2+Cap/Met	X				X			X					X	N/A		X	N/A	X		N/A				X				Perm	39.3	40	
R3+Mjr+Wlk(General)+C3+P3+Cap/Met	X				X			X					X	N/A		X	N/A		X	N/A				X				Perm	39.3	40	
R1+Mjr+W1+Cap/Met	X				X			X			X			N/A			N/A			N/A				X			SR	Perm	61.8	62	
R2+Mjr+W2+Cap/Met	X				X			X				X		N/A			N/A			N/A				X			SR	Perm	59.8	60	Service Road assumes 3m median between service road and Collector. Service Road assumes 2 lanes in each direction plus parking - lane width 3.3 / parking 2.5
R2+Mjr+Walk(Other)+Cap/Met	X				X			X					X	N/A			N/A			N/A				X			SR	Perm	60.2	61	
R1+Mjr+W1+C2+Cap/Met	X				X			X			X			N/A	X		N/A			N/A				X			SR	Perm	65.8	66	
R1+Mjr+W1+C3+Cap/Met	X				X			X			X			N/A		X	N/A			N/A				X			SR	Perm	61.8	62	
R2+Mjr+W2+C2+Cap/Met	X				X			X				X		N/A	X		N/A			N/A				X			SR	Perm	63.8	64	
R3+Mjr+W2+C3+Cap/Met	X				X			X				X		N/A		X	N/A			N/A				X			SR	Perm	47.8	48	
R1+Mjr+Walk(Other)+C2+Cap/Met	X				X			X					X	N/A	X		N/A			N/A				X			SR	Perm	65.8	66	
R2+Mjr+Walk(Other)+C3+Cap/Met	X				X			X					X	N/A		X	N/A			N/A				X			SR	Perm	60.8	61	
R3+Mjr+W1+P3+Cap/Met	X				X			X			X			N/A			N/A	X		N/A				X			SR	Perm	62.5	63	
R3+Mjr+W1+P3+Cap/Met	X				X			X			X			N/A			N/A		X	N/A				X			SR	Perm	62.5	63	
R2+Mjr+W2+P2+Cap/Met	X				X			X				X		N/A			N/A	X		N/A				X			SR	Perm	60.5	61	
R3+Mjr+W2+P3+Cap/Met	X				X			X				X		N/A			N/A		X	N/A				X			SR	Perm	60.5	61	
R3+Mjr+Walk(Other)+P2+Cap/Met	X				X			X					X	N/A			N/A	X		N/A				X			SR	Perm	60.9	61	
R2+Mjr+Walk(Other)+P3+Cap/Met	X				X			X					X	N/A			N/A		X	N/A				X			SR	Perm	60.9	61	
R2+Mjr+W1+C2+P2+Cap/Met	X				X			X			X			N/A	X		N/A	X		N/A				X			SR	Perm	66.5	67	
R1+Mjr+W1+C3+P3+Cap/Met	X				X			X			X			N/A		X	N/A		X	N/A				X			SR	Perm	59.2	60	
R2+Mjr+W2+C2+P2+Cap/Met	X				X			X				X		N/A	X		N/A	X		N/A				X			SR	Perm	64.5	65	
R2+Mjr+W2+C2+P3+Cap/Met	X				X			X				X		N/A	X		N/A		X	N/A				X			SR	Perm	64.5	65	
R3+Mjr+Wlk(General)+C2+P2+Cap/Met	X				X			X					X	N/A	X		N/A	X		N/A				X			SR	Perm	66.5	67	
R2+Mjr+Wlk(General)+C2+P3+Cap/Met	X				X			X					X	N/A	X		N/A		X	N/A				X			SR	Perm	66.5	67	
R2+Mjr+W1+C3+P2+Cap/Met	X				X			X			X			N/A		X	N/A	X		N/A				X			SR	Perm	82.5	83	
R3+Mjr+W1+C3+P3+Cap/Met	X				X			X			X			N/A		X	N/A		X	N/A				X			SR	Perm	62.5	63	
R2+Mjr+W2+C3+P2+Cap/Met	X				X			X				X		N/A		X	N/A	X		N/A				X			SR	Perm	60.5	61	
R3+Mjr+W2+C3+P3+Cap/Met	X				X			X				X		N/A		X	N/A		X	N/A				X			SR	Perm	60.5	61	
R3+Mjr+Wlk(General)+C3+P2+Cap/Met	X				X			X					X	N/A		X	N/A	X		N/A				X			SR	Perm	61.5	62	
R3+Mjr+Wlk(General)+C3+P3+Cap/Met	X				X			X					X	N/A		X	N/A		X	N/A				X			SR	Perm	61.5	62	
R2+Mjr+TC	X				X			X		X				N/A			N/A			N/A					X			Perm	39.6	40	
R3+Mjr+W2+TC	X				X			X				X		N/A			N/A			N/A					X			Perm	37.6	38	
R2+Mjr+Walk(Other)+TC	X				X			X					X	N/A			N/A			N/A					X			Perm	36	36	
R1+Mjr+W1+C2+TC	X				X			X			X			N/A	X		N/A			N/A					X			Perm	43.6	44	
R1+Mjr+W1+C3+TC	X				X			X			X			N/A		X	N/A			N/A					X			Perm	39.6	40	
R2+Mjr+W2+C2+TC	X				X			X				X		N/A	X		N/A			N/A					X			Perm	41.6	42	
R3+Mjr+W2+C3+TC	X				X			X				X		N/A		X	N/A			N/A					X			Perm	25.6	26	
R3+Mjr+Wlk(General)+C2+TC	X				X			X					X	N/A	X		N/A			N/A					X			Perm	41.6	42	
R2+Mjr+Wlk(General)+C3+TC	X				X			X					X	N/A		X	N/A			N/A					X			Perm	26.6	27	
R1+Mjr+W1+P2+TC	X				X			X			X			N/A			N/A	X		N/A					X			Perm	40.3	41	
R1+Mjr+W1+P3+TC	X				X			X			X			N/A			N/A		X	N/A					X			Perm	40.3	41	

APPENDIX C

	Stage 1 - Road Typology									Stage 2 - Mode Specific													Stage 3 - Context Specific								
											Walking			Cycling			Public Transport			Freight											
Label	Urban	Rural	Expressway (R1)	Arterial (R2)	Collector (R3)	Local (R4)	Low Volume	Average Volume	High Volume	No specific	Prestige (W1)	City (W2)	General	State (C1)	City (C2)	Local (C3)	Dedicated (P1)	Priority (P2)	Local (P3)	State Sig (F1)	Major (F2)	Local F3)	No Specific	Capital City / Met Centre	Town Center	Economic / Industrial	Service Road / Frontage Road	Parking	Cross Section Width	Rounded Up Cross Section Width	Cross Section Specific Notes
Expressway																															
R3+Mjr+W2+P3+TC	X				X			X				X		N/A			N/A		X	N/A			X					Perm	38.3	39	
R3+Mjr+W2+P3+TC	X				X			X				X		N/A			N/A		X	N/A			X					Perm	38.3	39	
R3+Mjr+W3(General)+P2+TC	X				X			X					X	N/A			N/A	X		N/A			X					Perm	36.7	37	
R3+Mjr+W3(General)+P3+TC	X				X			X					X	N/A			N/A		X	N/A			X					Perm	36.7	37	
R3+Mjr+W1+C2+P2+TC	X				X			X			X			N/A	X		N/A	X		N/A			X					Perm	44.3	45	
R3+Mjr+W1+C2+P3+TC	X				X			X			X			N/A	X		N/A		X	N/A			X					Perm	37	37	
R3+Mjr+W2+C2+P2+TC	X				X			X				X		N/A	X		N/A	X		N/A			X					Perm	42.3	43	
R3+Mjr+W2+C2+P3+TC	X				X			X				X		N/A	X		N/A		X	N/A			X					Perm	42.3	43	
R3+Mjr+W3(General)+C2+P2+TC	X				X			X					X	N/A	X		N/A	X		N/A			X					Perm	42.7	43	
R3+Mjr+W3(General)+C2+P3+TC	X				X			X					X	N/A	X		N/A		X	N/A			X					Perm	42.7	43	
R3+Mjr+W1+C3+P2+TC	X				X			X			X			N/A		X	N/A	X		N/A			X					Perm	40.3	41	
R3+Mjr+W1+C3+P3+TC	X				X			X			X			N/A		X	N/A		X	N/A			X					Perm	40.3	41	
R3+Mjr+W2+C3+P2+TC	X				X			X				X		N/A		X	N/A	X		N/A			X					Perm	38.3	39	
R3+Mjr+W2+C3+P3+TC	X				X			X				X		N/A		X	N/A		X	N/A			X					Perm	38.3	39	
R3+Mjr+W3(General)+C3+P2+TC	X				X			X					X	N/A		X	N/A	X		N/A			X					Perm	36.7	37	
R3+Mjr+W3(General)+C3+P3+TC	X				X			X					X	N/A		X	N/A		X	N/A			X					Perm	36.7	37	
R3+Mjr+TC	X				X			X		X				N/A			N/A			N/A			X				SR	Perm	61.8	62	
R3+Mjr+W2+TC	X				X			X				X		N/A			N/A			N/A			X				SR	Perm	59.8	60	
R3+Mjr+Walk(Other)+TC	X				X			X					X	N/A			N/A			N/A			X				SR	Perm	58.2	59	
R3+Mjr+W1+C2+TC	X				X			X			X			N/A	X		N/A			N/A			X				SR	Perm	65.8	66	
R3+Mjr+W1+C3+TC	X				X			X			X			N/A		X	N/A			N/A			X				SR	Perm	61.8	62	
R3+Mjr+W2+C2+TC	X				X			X				X		N/A	X		N/A			N/A			X				SR	Perm	63.8	64	
R3+Mjr+W2+C3+TC	X				X			X				X		N/A		X	N/A			N/A			X				SR	Perm	47.8	48	
R3+Mjr+W3(General)+C2+TC	X				X			X					X	N/A	X		N/A			N/A			X				SR	Perm	64.8	64	
R3+Mjr+W3(General)+C3+TC	X				X			X					X	N/A		x	N/A			N/A			X				SR	Perm	58.8	59	
R3+Mjr+W1+P2+TC	X				X			X			X			N/A			N/A	X		N/A			X				SR	Perm	62.5	63	
R3+Mjr+W1+P3+TC	X				X			X			X			N/A			N/A		X	N/A			X				SR	Perm	62.5	63	
R3+Mjr+W2+P2+TC	X				X			X				X		N/A			N/A	X		N/A			X				SR	Perm	60.5	61	Service Road assumes 2m median between service road and Collector. Service Road assumes 2 lanes in each direction plus parking - lane width 3.3 / parking 2.5
R3+Mjr+W2+P3+TC	X				X			X				X		N/A			N/A		X	N/A			X				SR	Perm	60.5	61	
R3+Mjr+W3(General)+P2+TC	X				X			X					X	N/A			N/A	X		N/A			X				SR	Perm	58.9	59	
R3+Mjr+W3(General)+P3+TC	X				X			X					X	N/A			N/A		X	N/A			X				SR	Perm	58.9	59	
R3+Mjr+W1+C2+P2+TC	X				X			X			X			N/A	X		N/A	X		N/A			X				SR	Perm	66.5	67	
R3+Mjr+W1+C2+P3+TC	X				X			X			X			N/A	X		N/A		X	N/A			X				SR	Perm	66.2	66	
R3+Mjr+W2+C2+P2+TC	X				X			X				X		N/A	X		N/A	X		N/A			X				SR	Perm	64.5	65	
R3+Mjr+W2+C2+P3+TC	X				X			X				X		N/A	X		N/A		X	N/A			X				SR	Perm	64.5	65	
R3+Mjr+W3(General)+C2+P2+TC	X				X			X					X	N/A	X		N/A	X		N/A			X				SR	Perm	64.9	65	
R3+Mjr+W3(General)+C2+P3+TC	X				X			X					X	N/A	X		N/A		X	N/A			X				SR	Perm	64.9	65	
R3+Mjr+W1+C3+P2+TC	X				X			X			X			N/A		X	N/A	X		N/A			X				SR	Perm	62.5	63	
R3+Mjr+W1+C3+P3+TC	X				X			X			X			N/A		X	N/A		X	N/A			X				SR	Perm	62.5	63	
R3+Mjr+W2+C3+P2+TC	X				X			X				X		N/A		X	N/A	X		N/A			X				SR	Perm	60.5	61	
R3+Mjr+W2+C3+P3+TC	X				X			X				X		N/A		X	N/A		X	N/A			X				SR	Perm	60.5	61	
R3+Mjr+W3(General)+C3+P2+TC	X				X			X					X	N/A		X	N/A	X		N/A			X				SR	Perm	58.9	59	
R3+Mjr+W3(General)+C3+P3+TC	X				X			X					X	N/A		X	N/A		X	N/A			X				SR	Perm	58.9	59	
R3+Mjr+W1+F2	X				X			X			X			N/A			N/A			N/A	X		X					Res	48.6	49	
R3+Mjr+W2+F2	X				X			X				X		N/A			N/A			N/A	X		X					Res	46.6	47	
R3+Mjr+Walk(Other)+F2	X				X			X					X	N/A			N/A			N/A	X		X					Res	41	41	
R3+Mjr+W1+C2+F2	X				X			X			X			N/A	X		N/A			N/A	X		X					Res	52.6	53	
R3+Mjr+W1+C3+F2	X				X			X			X			N/A		X	N/A			N/A	X		X					Res	48.6	49	
R3+Mjr+W2+C2+F2	X				X			X				X		N/A	X		N/A			N/A	X		X					Res	50.6	51	
R3+Mjr+W2+C3+F2	X				X			X				X		N/A		X	N/A			N/A	X		X					Res	46.6	47	
R3+Mjr+W3(General)+C2+F2	X				X			X					X	N/A	X		N/A			N/A	X		X					Res	43.6	44	
R3+Mjr+W3(General)+C3+F2	X				X			X					X	N/A		X	N/A			N/A	X		X					Res	43.6	44	
R3+Mjr+W1+P2+F2	X				X			X			X			N/A			N/A	X		N/A	X		X					Res	55.9	56	
R3+Mjr+W1+P3+F2	X				X			X			X			N/A			N/A		X	N/A	X		X					Res	48.6	49	
R3+Mjr+W2+P2+F2	X				X			X				X		N/A			N/A	X		N/A	X		X					Res	53.9	54	
R3+Mjr+W2+P3+F2	X				X			X				X		N/A			N/A		X	N/A	X		X					Res	46.6	47	
R3+Mjr+W3(General)+P2+F2	X				X			X					X	N/A			N/A	X		N/A	X		X					Res	48.3	49	
R3+Mjr+W3(General)+P3+F2	X				X			X					X	N/A			N/A		X	N/A	X		X					Res	41	41	
R3+Mjr+W1+C2+P2+F2	X				X			X			X			N/A	X		N/A	X		N/A	X		X					Res	59.9	60	
R3+Mjr+W1+C2+P3+F2	X				X			X			X			N/A	X		N/A		X	N/A	X		X					Res	52.6	53	
R3+Mjr+W2+C2+P2+F2	X				X			X				X		N/A	X		N/A	X		N/A	X		X					Res	57.9	58	
R3+Mjr+W2+C2+P3+F2	X				X			X				X		N/A	X		N/A		X	N/A	X		X					Res	50.6	51	
R3+Mjr+W3(General)+C2+P2+F2	X				X			X					X	N/A	X		N/A	X		N/A	X		X					Res	53.9	54	
R3+Mjr+W3(General)+C2+P3+F2	X				X			X					X	N/A	X		N/A		X	N/A	X		X					Res	46.6	47	
R3+Mjr+W1+C3+P2+F2	X				X			X			X			N/A		X	N/A	X		N/A	X		X					Res	55.9	56	
R3+Mjr+W1+C3+P3+F2	X				X			X			X			N/A		X	N/A		X	N/A	X		X					Res	48.6	49	
R3+Mjr+W2+C3+P2+F2	X				X			X				X		N/A		X	N/A	X		N/A	X		X					Res	53.9	54	
R3+Mjr+W2+C3+P3+F2	X				X			X				X		N/A		X	N/A		X	N/A	X		X					Res	46.6	47	
R3+Mjr+W3(General)+C3+P2+F2	X				X			X					X	N/A		X	N/A	X		N/A	X		X					Res	50.9	51	
R3+Mjr+W3(General)+C3+P3+F2	X				X			X					X	N/A		X	N/A		X	N/A	X		X					Res	43.6	44	
R3+Mjr+W1+F3	X				X			X			X			N/A			N/A			N/A	X		X				SR	Res	67.2	68	
R3+Mjr+W2+F3	X				X			X				X		N/A			N/A			N/A	X		X				SR	Res	65.2	66	
R3+Mjr+Walk(Other)+F2	X				X			X					X	N/A			N/A			N/A	X		X				SR	Res	59.6	60	
R3+Mjr+W1+C2+F2	X				X			X			X			N/A	X		N/A			N/A	X		X				SR	Res	71.2	72	
R3+Mjr+W1+C3+F2	X				X			X			X			N/A		X	N/A			N/A	X		X				SR	Res	67.2	68	
R3+Mjr+W2+C2+F2	X				X			X				X		N/A	X		N/A			N/A	X		X				SR	Res	69.2	70	
R3+Mjr+W2+C3+F2	X				X			X				X		N/A		X	N/A			N/A	X		X				SR	Res	65.2	66	

Typical Cross Sections

Label	Stage 1 - Road Typology									Stage 2 - Mode Specific													Stage 3 - Context Specific				Service Road / Frontage Road	Parking	Cross Section Width	Rounded Up Cross Section Width	Cross Section Specific Notes
										No specific	Walking			Cycling			Public Transport			Freight			No Specific	Capital City / Met Centre	Town Center	Economic / Industrial					
	Urban	Rural	Expressway (R1)	Arterial (R2)	Collector (R3)	Local (R4)	Low Volume	Average Volume	High Volume		Prestige (W1)	City (W2)	General	State (C1)	City (C2)	Local (C3)	Dedicated (P1)	Priority (P2)	Local (P3)	State Sig (F1)	Major (F2)	Local F3)									
Expressway																															
R3+Mjr+Wlk(General)+C2+P2	X				X			X					X	N/A	X		N/A			N/A	X		X				SR	Res	65.2	66	
R3+Mjr+Wlk(General)+C3+P2	X				X			X					X	N/A		X	N/A			N/A	X		X				SR	Res	62.2	63	
R3+Mjr+W1+P2+P2	X				X			X			X			N/A			N/A	X		N/A	X		X				SR	Res	74.5	75	
R3+Mjr+W1+P3+P2	X				X			X			X			N/A			N/A		X	N/A	X		X				SR	Res	67.2	68	
R3+Mjr+W2+P2+P2	X				X			X				X		N/A			N/A	X		N/A	X		X				SR	Res	72.5	73	
R3+Mjr+W2+P3+P2	X				X			X				X		N/A			N/A		X	N/A	X		X				SR	Res	65.2	66	
R3+Mjr+Wlk(General)+P2+P2	X				X			X					X	N/A			N/A	X		N/A	X		X				SR	Res	66.9	67	
R3+Mjr+Wlk(General)+P3+P2	X				X			X					X	N/A			N/A		X	N/A	X		X				SR	Res	59.6	60	
R3+Mjr+W1+C2+P2+P2	X				X			X			X			N/A	X		N/A	X		N/A	X		X				SR	Res	78.5	79	
R3+Mjr+W1+C2+P3+P2	X				X			X			X			N/A	X		N/A		X	N/A	X		X				SR	Res	71.2	72	
R3+Mjr+W2+C2+P2+P2	X				X			X				X		N/A	X		N/A	X		N/A	X		X				SR	Res	74.5	73	
R3+Mjr+W2+C2+P3+P2	X				X			X				X		N/A	X		N/A		X	N/A	X		X				SR	Res	69.2	70	
R3+Mjr+Wlk(General)+C2+P2+P2	X				X			X					X	N/A	X		N/A	X		N/A	X		X				SR	Res	72.5	73	
R3+Mjr+Wlk(General)+C2+P3+P2	X				X			X					X	N/A	X		N/A		X	N/A	X		X				SR	Res	65.2	66	
R3+Mjr+W1+C3+P2+P2	X				X			X			X			N/A		X	N/A	X		N/A	X		X				SR	Res	74.5	75	
R3+Mjr+W1+C3+P3+P2	X				X			X			X			N/A		X	N/A		X	N/A	X		X				SR	Res	67.2	68	
R3+Mjr+W2+C3+P2+P2	X				X			X				X		N/A		X	N/A	X		N/A	X		X				SR	Res	72.5	73	
R3+Mjr+W2+C3+P3+P2	X				X			X				X		N/A		X	N/A		X	N/A	X		X				SR	Res	65.2	66	
R3+Mjr+Wlk(General)+C3+P2+P2	X				X			X					X	N/A		X	N/A	X		N/A	X		X				SR	Res	69.5	70	
R3+Mjr+Wlk(General)+C3+P3+P2	X				X			X					X	N/A		X	N/A		X	N/A	X		X				SR	Res	62.2	63	
R3+Mjr+P2+E1	X				X			X		X				N/A			N/A			N/A	X					X		Perm	40.6	41	
R3+Mjr+W1+P2+E1	X				X			X			X			N/A			N/A			N/A	X					X		Perm	54.0	55	
R3+Mjr+W2+P2+E1	X				X			X				X		N/A			N/A			N/A	X					X		Perm	52.6	53	
R3+Mjr+Walk(Other)+P2+E1	X				X			X					X	N/A			N/A			N/A	X					X		Perm	47	47	
R3+Mjr+W2+C2+P2+E1	X				X			X			X			N/A	X		N/A			N/A	X					X		Perm	58.6	59	
R3+Mjr+W1+C3+P2+E1	X				X			X			X			N/A		X	N/A			N/A	X					X		Perm	54.6	55	
R3+Mjr+W2+C2+P2+E1	X				X			X				X		N/A	X		N/A			N/A	X					X		Perm	56.6	57	
R3+Mjr+W2+C3+P2+E1	X				X			X				X		N/A		X	N/A			N/A	X					X		Perm	52.6	53	
R3+Mjr+Wlk(General)+C2+P2+E1	X				X			X					X	N/A	X		N/A	X		N/A	X					X		Perm	52.6	53	
R3+Mjr+Wlk(General)+C3+P2+E1	X				X			X					X	N/A		X	N/A		X	N/A	X					X		Perm	48.6	49	
R3+Mjr+W1+C3+P3+E1	X				X			X			X			N/A		X	N/A	X		N/A	X					X		Perm	61.9	62	
R3+Mjr+W2+C3+P2+E1	X				X			X				X		N/A		X	N/A		X	N/A	X					X		Perm	54.6	55	
R3+Mjr+W2+C3+P3+E1	X				X			X				X		N/A		X	N/A	X		N/A	X					X		Perm	59.9	60	
R3+Mjr+W2+C3+P2+E1	X				X			X				X		N/A		X	N/A		X	N/A	X					X		Perm	52.6	53	
R3+Mjr+Wlk(General)+C3+P3+E1	X				X			X					X	N/A		X	N/A		X	N/A	X					X		Perm	56.9	57	
R3+Mjr+Wlk(General)+C3+P2+E1	X				X			X					X	N/A		X	N/A		X	N/A	X					X		Perm	49.6	50	
R3+Mjr+P3+E1	X				X			X		X				N/A			N/A			N/A		X				X		Perm	35.3	36	
R3+Mjr+W1+P3+E1	X				X			X			X			N/A			N/A			N/A	X					X		Perm	48.8	50	
R3+Mjr+W2+P3+E1	X				X			X				X		N/A			N/A			N/A	X					X		Perm	47.3	48	
R3+Mjr+Walk(Other)+P3+E1	X				X			X					X	N/A			N/A			N/A	X					X		Perm	41.7	42	
R3+Mjr+W2+C2+P3+E1	X				X			X			X			N/A	X		N/A			N/A	X					X		Perm	53.3	54	
R3+Mjr+W1+C3+P3+E1	X				X			X			X			N/A		X	N/A			N/A	X					X		Perm	49.8	50	
R3+Mjr+W2+C2+P3+E1	X				X			X				X		N/A	X		N/A			N/A	X					X		Perm	51.3	52	
R3+Mjr+W2+C3+P3+E1	X				X			X				X		N/A		X	N/A			N/A	X					X		Perm	47.3	48	
R3+Mjr+Wlk(General)+C2+P3+E1	X				X			X					X	N/A	X		N/A			N/A	X					X		Perm	47.3	48	
R3+Mjr+Wlk(General)+C3+P3+E1	X				X			X					X	N/A		X	N/A			N/A	X					X		Perm	44.3	45	
R3+Mjr+W1+P2+P3+E1	X				X			X			X			N/A			N/A	X		N/A	X					X		Perm	56.6	57	
R3+Mjr+W1+P3+P3+E1	X				X			X			X			N/A			N/A		X	N/A	X					X		Perm	49.3	50	
R3+Mjr+W2+P2+P3+E1	X				X			X				X		N/A			N/A	X		N/A	X					X		Perm	54.6	55	
R3+Mjr+W2+P3+P3+E1	X				X			X				X		N/A			N/A		X	N/A	X					X		Perm	47.3	48	
R3+Mjr+Wlk(General)+P2+P3+E1	X				X			X					X	N/A			N/A	X		N/A	X					X		Perm	49	49	
R3+Mjr+Wlk(General)+P3+P3+E1	X				X			X					X	N/A			N/A		X	N/A	X					X		Perm	41.7	42	
R3+Mjr+W1+C2+P2+P3+E1	X				X			X			X			N/A	X		N/A	X		N/A	X					X		Perm	60.6	61	
R3+Mjr+W1+C2+P3+P3+E1	X				X			X			X			N/A	X		N/A		X	N/A	X					X		Perm	53.3	54	
R3+Mjr+W2+C2+P2+P3+E1	X				X			X				X		N/A	X		N/A	X		N/A	X					X		Perm	58.6	59	
R3+Mjr+W2+C2+P3+P3+E1	X				X			X				X		N/A	X		N/A		X	N/A	X					X		Perm	51.3	52	
R3+Mjr+Wlk(General)+C2+P2+P3+E1	X				X			X					X	N/A	X		N/A	X		N/A	X					X		Perm	54.6	55	
R3+Mjr+Wlk(General)+C2+P3+P3+E1	X				X			X					X	N/A	X		N/A		X	N/A	X					X		Perm	47.3	48	
R3+Mjr+W2+C3+P2+P3+E1	X				X			X			X			N/A		X	N/A	X		N/A	X					X		Perm	56.6	57	
R3+Mjr+W1+C3+P3+P3+E1	X				X			X			X			N/A		X	N/A		X	N/A	X					X		Perm	49.3	50	
R3+Mjr+W2+C3+P2+P3+E1	X				X			X				X		N/A		X	N/A	X		N/A	X					X		Perm	54.6	55	
R3+Mjr+W2+C3+P3+P3+E1	X				X			X				X		N/A		X	N/A		X	N/A	X					X		Perm	47.3	48	
R3+Mjr+Wlk(General)+C3+P2+P3+E1	X				X			X					X	N/A		X	N/A	X		N/A	X					X		Perm	51.6	52	
R3+Mjr+Wlk(General)+C3+P3+P3+E1	X				X			X					X	N/A		X	N/A		X	N/A	X					X		Perm	44.3	45	
R3+Mjr+P2+E1	X				X			X		X				N/A			N/A			N/A	X					X	SR	Perm	65.2	66	

Label	Stage 1 - Road Typology									Stage 2 - Mode Specific													Stage 3 - Context Specific				Service Road / Frontage Road	Parking	Cross Section Width	Rounded Up Cross Section Width	Cross Section Specific Notes
										No specific	Walking			Cycling			Public Transport			Freight											
	Urban	Rural	Exp'way (R1)	Arterial (R2)	Collector (R3)	Local (R4)	Low Volume	Average Volume	High Volume		Prestige (W1)	City (W2)	General	State (C1)	City (C2)	Local (C3)	Dedicated (P1)	Priority (P2)	Local (P3)	State Sig (F1)	Major (F2)	Local (F3)	No Specific	Capital City / Met Centre	Town Center	Economic / Industrial					
Expressway																															
R3+My+W1+F2+EI	X				X			X			X			N/A			N/A			N/A	X					X	SR	Perm	79.2	80	
R4+My+W2+F2+EI	X				X			X				X		N/A			N/A			N/A	X					X	SR	Perm	77.2	78	
R4+My+Walk(Other)+F2+EI	X				X			X					X	N/A			N/A			N/A	X					X	SR	Perm	71.6	72	
R3+My+W1+C2+F2+EI	X				X			X			X			N/A	X		N/A			N/A	X					X	SR	Perm	83.2	84	
R3+My+W1+C3+F2+EI	X				X			X			X			N/A		X	N/A			N/A	X					X	SR	Perm	79.2	80	
R4+My+W2+C2+F2+EI	X				X			X				X		N/A	X		N/A			N/A	X					X	SR	Perm	81.2	82	
R4+My+W2+C3+F2+EI	X				X			X				X		N/A		X	N/A			N/A	X					X	SR	Perm	77.2	78	
R3+My+Wlk(General)+C2+F2+EI	X				X			X					X	N/A	X		N/A			N/A	X					X	SR	Perm	77.2	78	
R3+My+Wlk(General)+C3+F2+EI	X				X			X					X	N/A		X	N/A			N/A	X					X	SR	Perm	74.2	75	
R3+My+W1+P2+F2+EI	X				X			X			X			N/A			N/A	X		N/A	X					X	SR	Perm	86.5	87	
R4+My+W1+P2+F2+EI	X				X			X			X			N/A			N/A		X	N/A	X					X	SR	Perm	79.2	80	
R4+My+W2+P2+F2+EI	X				X			X				X		N/A			N/A	X		N/A	X					X	SR	Perm	84.5	85	
R4+My+W2+P3+F2+EI	X				X			X				X		N/A			N/A		X	N/A	X					X	SR	Perm	77.2	78	
R3+My+Wlk(General)+P2+F2+EI	X				X			X					X	N/A			N/A	X		N/A	X					X	SR	Perm	76.9	29	
R3+My+Wlk(General)+P3+F2+EI	X				X			X					X	N/A			N/A		X	N/A	X					X	SR	Perm	71.6	72	
R4+My+W1+C2+P2+F2+EI	X				X			X			X			N/A	X		N/A	X		N/A	X					X	SR	Perm	90.5	91	
R3+My+W1+C3+P3+F2+EI	X				X			X			X			N/A	X		N/A		X	N/A	X					X	SR	Perm	88.2	84	
R3+My+W2+C2+P2+F2+EI	X				X			X				X		N/A	X		N/A	X		N/A	X					X	SR	Perm	88.5	89	
R4+My+W2+C2+P3+F2+EI	X				X			X				X		N/A	X		N/A		X	N/A	X					X	SR	Perm	81.2	82	
R4+My+Wlk(General)+C2+P2+F2+EI	X				X			X					X	N/A	X		N/A	X		N/A	X					X	SR	Perm	84.5	85	
R4+My+Wlk(General)+C2+P3+F2+EI	X				X			X					X	N/A	X		N/A		X	N/A	X					X	SR	Perm	77.2	78	
R3+My+W1+C3+P2+F2+EI	X				X			X			X			N/A		X	N/A	X		N/A	X					X	SR	Perm	86.5	87	
R3+My+W1+C3+P3+F2+EI	X				X			X			X			N/A		X	N/A		X	N/A	X					X	SR	Perm	79.2	80	
R4+My+W2+C2+P2+F2+EI	X				X			X				X		N/A		X	N/A	X		N/A	X					X	SR	Perm	84.5	85	
R4+My+W2+C3+P3+F2+EI	X				X			X				X		N/A		X	N/A		X	N/A	X					X	SR	Perm	77.2	78	
R3+My+Wlk(General)+C3+P2+F2+EI	X				X			X					X	N/A		X	N/A	X		N/A	X					X	SR	Perm	81.5	82	Service Road assumes 2m median between service road and Collector. Service Road assumes 2 lanes in each direction plus parking - lane width 3.65m / parking 3m
R3+My+Wlk(General)+C3+P3+F2+EI	X				X			X					X	N/A		X	N/A		X	N/A	X					X	SR	Perm	74.2	75	
R3+My+F3+EI	X				X			X		X				N/A			N/A			N/A		X				X	SR	Perm	69.9	80	
R4+My+W2+F3+EI	X				X			X			X			N/A			N/A			N/A		X				X	SR	Perm	73.9	74	
R4+My+W2+F3+EI	X				X			X				X		N/A			N/A			N/A		X				X	SR	Perm	71.9	72	
R3+My+Walk(Other)+F3+EI	X				X			X					X	N/A			N/A			N/A		X				X	SR	Perm	66.3	67	
R3+My+W1+C2+F3+EI	X				X			X			X			N/A	X		N/A			N/A		X				X	SR	Perm	77.9	78	
R3+My+W1+C3+F3+EI	X				X			X			X			N/A		X	N/A			N/A		X				X	SR	Perm	73.9	74	
R3+My+W2+C2+P3+EI	X				X			X				X		N/A	X		N/A			N/A		X				X	SR	Perm	76.9	76	
R3+My+W2+C3+P3+EI	X				X			X				X		N/A		X	N/A			N/A		X				X	SR	Perm	71.9	72	
R3+My+Wlk(General)+C2+F3+EI	X				X			X					X	N/A	X		N/A			N/A		X				X	SR	Perm	71.9	72	
R3+My+Wlk(General)+C3+F3+EI	X				X			X					X	N/A		X	N/A			N/A		X				X	SR	Perm	68.9	69	
R4+My+W1+P2+F3+EI	X				X			X			X			N/A			N/A	X		N/A		X				X	SR	Perm	81.2	82	
R4+My+W1+P3+F3+EI	X				X			X			X			N/A			N/A		X	N/A		X				X	SR	Perm	73.9	74	
R3+My+W2+P2+F3+EI	X				X			X				X		N/A			N/A	X		N/A		X				X	SR	Perm	79.2	80	
R3+My+W2+P3+F3+EI	X				X			X				X		N/A			N/A		X	N/A		X				X	SR	Perm	71.9	72	
R4+My+Wlk(General)+P2+F3+EI	X				X			X					X	N/A			N/A	X		N/A		X				X	SR	Perm	73.6	74	
R4+My+Wlk(General)+P3+F3+EI	X				X			X					X	N/A			N/A		X	N/A		X				X	SR	Perm	66.3	67	
R3+My+W1+C2+P2+F3+EI	X				X			X			X			N/A	X		N/A	X		N/A		X				X	SR	Perm	85.2	86	
R3+My+W1+C2+P3+F3+EI	X				X			X			X			N/A	X		N/A		X	N/A		X				X	SR	Perm	77.9	78	
R4+My+W2+C2+P2+F3+EI	X				X			X				X		N/A	X		N/A	X		N/A		X				X	SR	Perm	83.2	84	
R4+My+W2+C2+P3+F3+EI	X				X			X				X		N/A	X		N/A		X	N/A		X				X	SR	Perm	75.9	76	
R3+My+Wlk(General)+C2+P2+F3+EI	X				X			X					X	N/A	X		N/A	X		N/A		X				X	SR	Perm	75.2	80	
R3+My+Wlk(General)+C2+P3+F3+EI	X				X			X					X	N/A	X		N/A		X	N/A		X				X	SR	Perm	71.9	72	
R3+My+W1+C3+P2+F3+EI	X				X			X			X			N/A		X	N/A	X		N/A		X				X	SR	Perm	81.2	82	
R3+My+W1+C3+P3+F3+EI	X				X			X			X			N/A		X	N/A		X	N/A		X				X	SR	Perm	73.9	74	
R4+My+W2+C3+P2+F3+EI	X				X			X				X		N/A		X	N/A	X		N/A		X				X	SR	Perm	79.2	80	
R4+My+W2+C3+P3+F3+EI	X				X			X				X		N/A		X	N/A		X	N/A		X				X	SR	Perm	71.9	72	
R3+My+Wlk(General)+C3+P2+F3+EI	X				X			X					X	N/A		X	N/A	X		N/A		X				X	SR	Perm	76.2	77	
R3+My+Wlk(General)+C3+P3+F3+EI	X				X			X					X	N/A		X	N/A		X	N/A		X				X	SR	Perm	68.9	69	
R4+Minor+W1					X		X				X			N/A			N/A			N/A			X				N/A	Res	94.6	95	
R4+Minor+W2					X		X					X		N/A			N/A			N/A			X				N/A	Res	92.6	93	
R3+Minor+Wlk(General)					X		X						X	N/A			N/A			N/A			X				N/A	Res	27	27	
R3+Minor+W1+C2					X		X				X			N/A	X		N/A			N/A			X				N/A	Res	38.6	39	
R3+Minor+W1+C3					X		X				X			N/A		X	N/A			N/A			X				N/A	Res	37.6	38	
R4+Minor+W2+C2					X		X					X		N/A	X		N/A			N/A			X				N/A	Res	36.6	37	
R4+Minor+W2+C3					X		X					X		N/A		X	N/A			N/A			X				N/A	Res	35.6	36	
R3+Minor+Wlk(General)+C2					X		X						X	N/A	X		N/A			N/A			X				N/A	Res	32.6	33	
R3+Minor+Wlk(General)+C3					X		X						X	N/A		X	N/A			N/A			X				N/A	Res	30	30	
R4+Minor+W1+P2					X		X				X			N/A			N/A	X		N/A			X				N/A	Res	41.9	42	
R4+Minor+W1+P3					X		X				X			N/A			N/A		X	N/A			X				N/A	Res	34.6	35	
R3+Minor+W2+P2					X		X					X		N/A			N/A	X		N/A			X				N/A	Res	39.9	40	
R3+Minor+W2+P3					X		X					X		N/A			N/A		X	N/A			X				N/A	Res	32.6	33	
R3+Minor+Wlk(General)+P2					X		X						X	N/A			N/A	X		N/A			X				N/A	Res	34.9	35	
R3+Minor+Wlk(General)+P3					X		X						X	N/A			N/A		X	N/A			X				N/A	Res	27	27	
R3+Minor+W1+C2+P2					X		X				X			N/A	X		N/A	X		N/A			X				N/A	Res	45.9	46	
R3+Minor+W1+C2+P3					X		X				X			N/A	X		N/A		X	N/A			X				N/A	Res	44.9	45	
R3+Minor+W1+C3+P3					X		X				X			N/A		X	N/A		X	N/A			X				N/A	Res	38.6	39	
R3+Minor+W2+C2+P2					X		X					X		N/A	X		N/A	X		N/A			X				N/A	Res	43.9	44	
R3+Minor+W2+C3+P2					X		X					X		N/A		X	N/A	X		N/A			X				N/A	Res	42.9	43	
R3+Minor+W2+C2+P3					X		X					X		N/A	X		N/A		X	N/A			X				N/A	Res	36.6	37	

APPENDIX C

Label	Stage 1 - Road Typology									Stage 2 - Mode Specific													Stage 3 - Context Specific				Service Road / Frontage Road	Parking	Cross Section Width	Rounded Up Cross Section Width	Cross Section Specific Notes
										No specific	Walking			Cycling			Public Transport			Freight												
	Urban	Rural	Exp'way (R1)	Arterial (R2)	Collector (R3)	Local (R4)	Low Volume	Average Volume	High Volume		Prestige (W1)	City (W2)	General	State (C1)	City (C2)	Local (C3)	Dedicated (P1)	Priority (P2)	Local (P3)	State Sig (F1)	Major (F2)	Local (F3)	No Specific	Capital City / Met Centre	Town Center	Economic / Industrial					
Expressway																															
R3+Minor+W2+C3+P3					X		X					X		N/A		X	N/A		X	N/A			X				N/A	Res	38.6	39	
R3+Minor+W/I(General)+C2+P3					X		X						X	N/A	X		N/A	X		N/A			X				N/A	Res	39.9	40	
R3+Minor+W/I(General)+C3+P3					X		X						X	N/A		X	N/A	X		N/A			X				N/A	Res	37.3	38	
R3+Minor+W/I(General)+C2+P3					X		X						X	N/A	X		N/A		X	N/A			X				N/A	Res	32.6	33	
R3+Minor+W/I(General)+C3+P3					X		X						X	N/A		X	N/A		X	N/A			X				N/A	Res	30	30	
R3+Minor+P2					X		X			X				N/A			N/A			N/A	X		X				N/A	Res	26.6	27	
R3+Minor+W1+P2					X		X				X			N/A			N/A			N/A	X		X				N/A	Res	40.6	41	
R3+Minor+W2+P2					X		X					X		N/A			N/A			N/A	X		X				N/A	Res	38.8	39	
R3+Minor+W/I(General)+P2					X		X						X	N/A			N/A			N/A	X		X				N/A	Res	33	33	
R3+Minor+W1+C3+P3					X		X				X			N/A	X		N/A			N/A	X		X				N/A	Res	44.6	45	
R3+Minor+W1+C3+P2					X		X				X			N/A		X	N/A			N/A	X		X				N/A	Res	43.6	44	
R3+Minor+W2+C2+P2					X		X					X		N/A	X		N/A			N/A	X		X				N/A	Res	42.6	43	
R3+Minor+W2+C3+P2					X		X					X		N/A		X	N/A			N/A	X		X				N/A	Res	38.6	39	
R3+Minor+W/I(General)+C2+P2					X		X						X	N/A	X		N/A	X		N/A	X		X				N/A	Res	45.9	46	
R3+Minor+W/I(General)+C3+P2					X		X						X	N/A		X	N/A	X		N/A	X		X				N/A	Res	43.9	44	
R3+Minor+W/I(General)+C2+P3					X		X						X	N/A	X		N/A		X	N/A	X		X				N/A	Res	38.6	39	
R3+Minor+W/I(General)+C3+P3					X		X						X	N/A		X	N/A		X	N/A	X		X				N/A	Res	38	38	
R3+Minor+W1+Cap/Met					X		X				X			N/A			N/A			N/A				X			N/A	Perm	31.6	32	
R3+Minor+W2+Cap/Met					X		X					X		N/A			N/A			N/A				X			N/A	Perm	29.6	30	
R3+Minor+W/I(General)+Cap/Met					X		X						X	N/A			N/A			N/A				X			N/A	Perm	30	30	
R3+Minor+W1+C2+Cap/Met					X		X				X			N/A	X		N/A			N/A				X			N/A	Perm	35.6	36	
R3+Minor+W1+C3+Cap/Met					X		X				X			N/A		X	N/A			N/A				X			N/A	Perm	34.6	35	
R3+Minor+W2+C2+Cap/Met					X		X					X		N/A	X		N/A			N/A				X			N/A	Perm	33.6	34	
R3+Minor+W2+C3+Cap/Met					X		X					X		N/A		X	N/A			N/A				X			N/A	Perm	32.6	33	
R3+Minor+W/I(General)+C2+Cap/Met					X		X						X	N/A	X		N/A			N/A				X			N/A	Perm	35.6	36	
R3+Minor+W/I(General)+C3+Cap/Met					X		X						X	N/A		X	N/A			N/A				X			N/A	Perm	33	33	
R3+Minor+W1+P2+Cap/Met					X		X				X			N/A			N/A	X		N/A				X			N/A	Perm	32.8	33	
R3+Minor+W1+P3+Cap/Met					X		X				X			N/A			N/A		X	N/A				X			N/A	Perm	32.8	33	
R3+Minor+W2+P2+Cap/Met					X		X					X		N/A			N/A	X		N/A				X			N/A	Perm	30.3	31	
R3+Minor+W2+P3+Cap/Met					X		X					X		N/A			N/A		X	N/A				X			N/A	Perm	30.3	31	
R3+Minor+W/I(General)+P2+Cap/Met					X		X						X	N/A			N/A	X		N/A				X			N/A	Perm	30.7	31	
R3+Minor+W/I(General)+P3+Cap/Met					X		X						X	N/A			N/A		X	N/A				X			N/A	Perm	30.7	31	
R3+Minor+W1+C2+P2+Cap/Met					X		X				X			N/A	X		N/A	X		N/A				X			N/A	Perm	36.3	37	
R3+Minor+W1+C3+P2+Cap/Met					X		X				X			N/A		X	N/A	X		N/A				X			N/A	Perm	33.3	34	
R3+Minor+W1+C2+P3+Cap/Met					X		X				X			N/A	X		N/A		X	N/A				X			N/A	Perm	36.3	37	
R3+Minor+W1+C3+P3+Cap/Met					X		X				X			N/A		X	N/A		X	N/A				X			N/A	Perm	33.3	34	
R3+Minor+W2+C2+P2+Cap/Met					X		X					X		N/A	X		N/A	X		N/A				X			N/A	Perm	34.3	35	
R3+Minor+W2+C3+P2+Cap/Met					X		X					X		N/A		X	N/A	X		N/A				X			N/A	Perm	30.3	31	
R3+Minor+W2+C2+P3+Cap/Met					X		X					X		N/A	X		N/A		X	N/A				X			N/A	Perm	34.2	35	
R3+Minor+W2+C3+P3+Cap/Met					X		X					X		N/A		X	N/A		X	N/A				X			N/A	Perm	30.3	31	
R3+Minor+W/I(General)+C2+P2+Cap/Met					X		X						X	N/A	X		N/A	X		N/A				X			N/A	Perm	36.3	37	
R3+Minor+W/I(General)+C3+P2+Cap/Met					X		X						X	N/A		X	N/A	X		N/A				X			N/A	Perm	33.3	32	
R3+Minor+W/I(General)+C2+P3+Cap/Met					X		X						X	N/A	X		N/A		X	N/A				X			N/A	Perm	38.3	37	
R3+Minor+W/I(General)+C3+P3+Cap/Met					X		X						X	N/A		X	N/A		X	N/A				X			N/A	Perm	31.3	32	Cross sections assume parallel parking
R3+Minor+W1+TC					X		X				X			N/A			N/A			N/A					X		N/A	Perm	31.6	32	
R3+Minor+W2+TC					X		X					X		N/A			N/A			N/A					X		N/A	Perm	29.6	30	
R3+Minor+W/I(General)+TC					X		X						X	N/A			N/A			N/A					X		N/A	Perm	28	28	
R3+Minor+W1+C2+TC					X		X				X			N/A	X		N/A			N/A					X		N/A	Perm	35.6	36	
R3+Minor+W1+C3+TC					X		X				X			N/A		X	N/A			N/A					X		N/A	Perm	30.6	31	
R3+Minor+W2+C2+TC					X		X					X		N/A	X		N/A			N/A					X		N/A	Perm	33.6	34	
R3+Minor+W2+C3+TC					X		X					X		N/A		X	N/A			N/A					X		N/A	Perm	28.6	29	
R3+Minor+W/I(General)+C2+TC					X		X						X	N/A	X		N/A			N/A					X		N/A	Perm	33.6	34	
R3+Minor+W/I(General)+C3+TC					X		X						X	N/A		X	N/A			N/A					X		N/A	Perm	32	32	
R3+Minor+W1+P2+TC					X		X				X			N/A			N/A	X		N/A					X		N/A	Perm	32.8	33	
R3+Minor+W1+P3+TC					X		X				X			N/A			N/A		X	N/A					X		N/A	Perm	32.8	33	
R3+Minor+W2+P2+TC					X		X					X		N/A			N/A	X		N/A					X		N/A	Perm	30.3	31	
R3+Minor+W2+P3+TC					X		X					X		N/A			N/A		X	N/A					X		N/A	Perm	30.3	31	
R3+Minor+W/I(General)+P2+TC					X		X						X	N/A			N/A	X		N/A					X		N/A	Perm	28.7	29	
R3+Minor+W/I(General)+P3+TC					X		X						X	N/A			N/A		X	N/A					X		N/A	Perm	28.7	29	
R3+Minor+W1+C2+P2+TC					X		X				X			N/A	X		N/A	X		N/A					X		N/A	Perm	36.3	37	
R3+Minor+W1+C3+P2+TC					X		X				X			N/A		X	N/A	X		N/A					X		N/A	Perm	35.2	36	

APPENDIX C

	Stage 1 - Road Typology									Stage 2 - Mode Specific													Stage 3 - Context Specific							
											Walking			Cycling			Public Transport			Freight										
Label	Urban	Rural	Expressway (R1)	Arterial (R2)	Collector (R3)	Local (R4)	Low Volume	Average Volume	High Volume	No specific	Prestige (W1)	City (W2)	General	State (C1)	City (C2)	Local (C3)	Dedicated (P1)	Priority (P2)	Local (P3)	State Significant (F1)	Major (F2)	Local (F3)	No Specific	Capital City / Met Centre	Town Center	Economic / Industrial	Service Road / Frontage Road	Parking	Cross Section Width	Roundod Up Cross Section Width	Cross Section Specific Notes
																										Expressway				
R2+Minor+W1+C2+F3+TC					X		X				X			N/A	X				X	N/A					X		N/A	Perm	38.3	37	
R3+Minor+W1+C3+F3+TC					X		X				X			N/A		X			X	N/A					X		N/A	Perm	35.3	36	
R3+Minor+W2+C3+F3+TC					X		X					X		N/A	X					N/A					X		N/A	Perm	34.3	35	
R2+Minor+W1+C3+F2+TC					X		X					X		N/A		X				N/A					X		N/A	Perm	33.3	34	
R2+Minor+W2+C2+F3+TC					X		X					X		N/A	X				X	N/A					X		N/A	Perm	34.3	35	
R2+Minor+W2+C3+F3+TC					X		X					X		N/A		X			X	N/A					X		N/A	Perm	33.3	34	
R3+Minor+W1(General)+C2+P2+TC					X		X						X	N/A	X			X		N/A					X		N/A	Perm	34.3	35	
R3+Minor+W1(General)+C3+P2+TC					X		X						X	N/A		X		X		N/A					X		N/A	Perm	31.7	32	
R3+Minor+W1(General)+C2+P3+TC					X		X						X	N/A	X				X	N/A					X		N/A	Perm	34.3	35	
R2+Minor+W1(General)+C3+P3+TC					X		X						X	N/A		X			X	N/A					X		N/A	Perm	31.7	32	
R2+Minor+F2+EI					X		X			X				N/A						N/A	X					X	N/A	Perm	32.6	33	
R3+Minor+W3+P2+EI					X		X				X			N/A						N/A	X					X	N/A	Perm	48.6	47	
R3+Minor+W2+P2+EI					X		X					X		N/A						N/A	X					X	N/A	Perm	44.6	45	
R3+Minor+W1(General)+P2+EI					X		X						X	N/A						N/A	X					X	N/A	Perm	39	39	
R2+Minor+W3+C2+F2+EI					X		X				X			N/A	X					N/A	X					X	N/A	Perm	50.6	51	
R2+Minor+W3+C3+F2+EI					X		X				X			N/A		X				N/A	X					X	N/A	Perm	49.6	50	
R3+Minor+W2+C2+P2+EI					X		X					X		N/A	X					N/A	X					X	N/A	Perm	48.6	49	
R3+Minor+W2+C3+P2+EI					X		X					X		N/A		X				N/A	X					X	N/A	Perm	45.6	50	
R3+Minor+W1(General)+C2+P2+F2+EI					X		X						X	N/A	X					N/A	X					X	N/A	Perm	44.6	45	
R3+Minor+W1(General)+P2+F2+EI					X		X						X	N/A						N/A	X					X	N/A	Perm	46.3	47	
R2+Minor+W1(General)+P2+F2+EI					X		X						X	N/A						N/A	X					X	N/A	Perm	39	39	
R3+Minor+W2+C2+P2+F2+EI					X		X				X			N/A	X					N/A	X					X	N/A	Perm	57.9	58	
R3+Minor+W1+C3+P2+F2+EI					X		X				X			N/A		X				N/A	X					X	N/A	Perm	56.9	57	
R3+Minor+W1+C2+P3+F2+EI					X		X				X			N/A	X					N/A	X					X	N/A	Perm	50.6	51	
R3+Minor+W1+C3+P3+F2+EI					X		X				X			N/A		X				N/A	X					X	N/A	Perm	49.6	50	
R2+Minor+W2+C2+P2+F2+EI					X		X					X		N/A	X					N/A	X					X	N/A	Perm	56.9	57	
R2+Minor+W2+C3+P2+F2+EI					X		X					X		N/A		X				N/A	X					X	N/A	Perm	56.9	57	
R3+Minor+W2+C3+P3+F2+EI					X		X					X		N/A		X				N/A	X					X	N/A	Perm	48.6	49	
R3+Minor+W2+C2+P3+F2+EI					X		X					X		N/A	X					N/A	X					X	N/A	Perm	45.6	50	
R3+Minor+W1(General)+C2+P2+F2+EI					X		X						X	N/A	X					N/A	X					X	N/A	Perm	51.9	52	
R2+Minor+W1(General)+C2+P2+F2+EI					X		X						X	N/A	X					N/A	X					X	N/A	Perm	49.3	50	
R3+Minor+W1(General)+C2+P3+F2+EI					X		X						X	N/A		X				N/A	X					X	N/A	Perm	46.6	45	
R3+Minor+W1(General)+C3+P2+F2+EI					X		X						X	N/A		X				N/A	X					X	N/A	Perm	43	43	
R3+Minor+F3+EI					X		X			X				N/A						N/A		X				X	N/A	Perm	28	28	
R3+Minor+W1+F3+EI					X		X				X			N/A						N/A		X				X	N/A	Perm	42	42	
R2+Minor+W2+F3+EI					X		X					X		N/A						N/A		X				X	N/A	Perm	40	40	
R2+Minor+W1(General)+P3+EI					X		X						X	N/A						N/A		X				X	N/A	Perm	37.4	38	
R3+Minor+W2+C2+F3+EI					X		X				X			N/A	X					N/A		X				X	N/A	Perm	46	46	
R3+Minor+W1+C3+F3+EI					X		X				X			N/A		X				N/A		X				X	N/A	Perm	45	45	
R3+Minor+W2+C2+F3+EI					X		X					X		N/A	X					N/A		X				X	N/A	Perm	44	44	
R2+Minor+W2+C3+F3+EI					X		X					X		N/A		X				N/A		X				X	N/A	Perm	43	43	
R2+Minor+W1(General)+C2+P3+EI					X		X						X	N/A	X					N/A		X				X	N/A	Perm	40	40	
R2+Minor+W1(General)+C3+P3+EI					X		X						X	N/A		X				N/A		X				X	N/A	Perm	37.4	38	
R3+Minor+W1+P2+F3+EI					X		X				X			N/A				X		N/A		X				X	N/A	Perm	45.3	50	
R3+Minor+W1+P3+F3+EI					X		X				X			N/A					X	N/A		X				X	N/A	Perm	42	42	
R3+Minor+W2+P2+F3+EI					X		X					X		N/A				X		N/A		X				X	N/A	Perm	47.3	48	
R2+Minor+W2+P3+F3+EI					X		X					X		N/A					X	N/A		X				X	N/A	Perm	40	40	
R2+Minor+W1(General)+P2+P3+EI					X		X						X	N/A				X		N/A		X				X	N/A	Perm	41.7	42	
R3+Minor+W1(General)+P3+P3+EI					X		X						X	N/A					X	N/A		X				X	N/A	Perm	34.4	35	
R3+Minor+W1+C2+P2+F3+EI					X		X				X			N/A	X			X		N/A		X				X	N/A	Perm	53.3	54	
R3+Minor+W1+C3+P2+F3+EI					X		X				X			N/A		X		X		N/A		X				X	N/A	Perm	52.3	53	
R2+Minor+W1+C2+P3+F3+EI					X		X				X			N/A	X				X	N/A		X				X	N/A	Perm	46	46	
R2+Minor+W1+C3+P3+F3+EI					X		X				X			N/A		X			X	N/A		X				X	N/A	Perm	45	45	
R3+Minor+W2+C3+P3+F3+EI					X		X					X		N/A	X				X	N/A		X				X	N/A	Perm	53.3	53	
R3+Minor+W2+C3+P2+F3+EI					X		X					X		N/A		X			X	N/A		X				X	N/A	Perm	50.3	51	
R3+Minor+W2+C2+P3+F3+EI					X		X					X		N/A	X				X	N/A		X				X	N/A	Perm	44	44	
R2+Minor+W2+C3+P3+F3+EI					X		X					X		N/A		X			X	N/A		X				X	N/A	Perm	43	43	
R2+Minor+W1(General)+C2+P2+P3+EI					X		X						X	N/A	X				X	N/A		X				X	N/A	Perm	47.3	48	
R3+Minor+W1(General)+C3+P2+P3+EI					X		X						X	N/A		X			X	N/A		X				X	N/A	Perm	44.7	45	
R3+Minor+W1(General)+C2+P3+P3+EI					X		X						X	N/A	X				X	N/A		X				X	N/A	Perm	40	40	
R2+Minor+W1(General)+C3+P3+P3+EI					X		X						X	N/A		X			X	N/A		X				X	N/A	Perm	37.4	38	
R2+Minor+W1			X		X		X				X			N/A						N/A			X				N/A	Res	47.3	48	
R2+Minor+W2			X		X		X					X		N/A						N/A			X				N/A	Res	45.3	46	
R2+Minor+W3(General)			X		X		X						X	N/A						N/A			X				N/A	Res	39.7	40	
R3+Minor+W1+C2			X		X		X				X			N/A	X					N/A			X				N/A	Res	51.3	52	
R3+Minor+W1+C3			X		X		X				X			N/A		X				N/A			X				N/A	Res	50.3	51	
R2+Minor+W2+C2			X		X		X					X		N/A	X					N/A			X				N/A	Res	49.3	50	
R2+Minor+W2+C3			X		X		X					X		N/A		X				N/A			X				N/A	Res	48.3	49	
R2+Minor+W3(General)+C2			X		X		X						X	N/A	X					N/A			X				N/A	Res	45.3	46	
R2+Minor+W3(General)+C3			X		X		X						X	N/A		X				N/A			X				N/A	Res	42.7	43	
R3+Minor+W1+P2			X		X		X				X			N/A				X		N/A			X				N/A	Res	54.6	55	
R3+Minor+W1+P3			X		X		X				X			N/A					X	N/A			X				N/A	Res	47.3	48	

Typical Cross Sections

Label	Stage 1 - Road Typology									Stage 2 - Mode Specific													Stage 3 - Context Specific				Service Road / Frontage Road	Parking	Cross Section Width	Rounded Up Cross Section Width	Cross Section Specific Notes
										No specific	Walking			Cycling			Public Transport			Freight			No Specific	Capital City / Mac Centre	Town Center	Economic / Industrial					
	Urban	Rural	Exp'way (R1)	Arterial (R2)	Collector (R3)	Local (R4)	Low Volume	Average Volume	High Volume		Prestige (WS)	City (W2)	General	State (C1)	City (C2)	Local (C3)	Dedicated (P1)	Priority (P2)	Local (P3)	State Sig (F1)	Major (F2)	Local F3)									
																							Expressway								
R3+Minor+W2+P2					X		X					X		N/A			N/A	X		N/A			X				N/A	Res	32.6	33	
R2+Minor+W2+P3					X		X					X		N/A			N/A		X	N/A			X				N/A	Res	45.8	46	
R3+Minor+W1(General)+P2					X		X						X	N/A			N/A	X		N/A			X				N/A	Res	42	42	
R2+Minor+W1(General)+P3					X		X						X	N/A			N/A		X	N/A			X				N/A	Res	39.2	40	
R3+Minor+W1+C2+P2					X		X				X			N/A	X		N/A	X		N/A			X				N/A	Res	33.6	34	
R3+Minor+W1+C3+P2					X		X				X			N/A		X	N/A	X		N/A			X				N/A	Res	57.6	58	
R2+Minor+W1+C2+P3					X		X				X			N/A	X		N/A		X	N/A			X				N/A	Res	51.3	52	
R2+Minor+W1+C3+P3					X		X				X			N/A		X	N/A		X	N/A							N/A	Res	50.3	51	
R3+Minor+W2+C2+P2					X		X					X		N/A	X		N/A	X		N/A			X				N/A	Res	58.6	57	
R3+Minor+W2+C3+P2					X		X					X		N/A		X	N/A	X		N/A			X				N/A	Res	55.6	56	
R3+Minor+W2+C2+P3					X		X					X		N/A	X		N/A		X	N/A			X				N/A	Res	49.3	50	
R2+Minor+W2+C3+P3					X		X					X		N/A		X	N/A		X	N/A			X				N/A	Res	48.3	49	
R3+Minor+W1(General)+C2+P2					X		X						X	N/A	X		N/A	X		N/A			X				N/A	Res	52.6	53	
R3+Minor+W1(General)+C3+P2					X		X						X	N/A		X	N/A	X		N/A			X				N/A	Res	50	50	
R2+Minor+W1(General)+C2+P3					X		X						X	N/A	X		N/A		X	N/A			X				N/A	Res	45.3	46	
R2+Minor+W1(General)+C2+P3					X		X						X	N/A		X	N/A		X	N/A			X				N/A	Res	42.7	43	
R3+Minor+P2					X		X			X				N/A			N/A			N/A	X		X				N/A	Res	39.3	40	
R3+Minor+W1+P2					X		X				X			N/A			N/A			N/A	X		X				N/A	Res	53.3	54	
R2+Minor+W2+P2					X		X					X		N/A			N/A			N/A	X		X				N/A	Res	51.2	52	
R2+Minor+W1(General)+P2					X		X						X	N/A			N/A			N/A	X		X				N/A	Res	46.7	46	
R3+Minor+W1+C2+P2					X		X				X			N/A	X		N/A			N/A	X		X				N/A	Res	57.3	58	
R3+Minor+W1+C3+P2					X		X				X			N/A		X	N/A			N/A	X		X				N/A	Res	56.3	57	
R2+Minor+W2+C2+P2					X		X					X		N/A	X		N/A			N/A	X		X				N/A	Res	55.8	56	
R2+Minor+W2+C3+P2					X		X					X		N/A		X	N/A			N/A	X		X				N/A	Res	54.3	55	
R3+Minor+W1(General)+C2+P2					X		X						X	N/A	X		N/A			N/A	X		X				N/A	Res	51.3	52	
R3+Minor+W1(General)+C3+P2					X		X						X	N/A		X	N/A			N/A	X		X				N/A	Res	48.7	49	
R2+Minor+W1+P2+P2					X		X				X			N/A			N/A	X		N/A	X		X				N/A	Res	60.6	61	
R2+Minor+W1+P3+P2					X		X				X			N/A			N/A		X	N/A	X		X				N/A	Res	53.3	54	
R3+Minor+W2+P2+P2					X		X					X		N/A			N/A	X		N/A	X		X				N/A	Res	58.6	59	
R3+Minor+W2+P3+P2					X		X					X		N/A			N/A		X	N/A	X		X				N/A	Res	53.3	52	
R2+Minor+W1(General)+P2+P2					X		X						X	N/A			N/A	X		N/A	X		X				N/A	Res	53	53	
R2+Minor+W1(General)+P3+P2					X		X						X	N/A			N/A		X	N/A	X		X				N/A	Res	48.7	48	
R3+Minor+W1+C2+P2+P2					X		X				X			N/A	X		N/A	X		N/A	X		X				N/A	Res	64.6	65	
R3+Minor+W1+C3+P2+P2					X		X				X			N/A		X	N/A	X		N/A	X		X				N/A	Res	63.6	64	
R2+Minor+W1+C2+P3+P2					X		X				X			N/A	X		N/A		X	N/A	X		X				N/A	Res	57.3	58	
R2+Minor+W1+C3+P3+P2					X		X				X			N/A		X	N/A		X	N/A	X		X				N/A	Res	56.3	57	
R3+Minor+W2+C2+P2+P2					X		X					X		N/A	X		N/A	X		N/A	X		X				N/A	Res	62.6	63	
R3+Minor+W2+C3+P2+P2					X		X					X		N/A		X	N/A	X		N/A	X		X				N/A	Res	61.6	62	
R2+Minor+W2+C2+P3+P2					X		X					X		N/A	X		N/A		X	N/A	X		X				N/A	Res	55.8	56	
R2+Minor+W2+C3+P3+P2					X		X					X		N/A		X	N/A		X	N/A	X		X				N/A	Res	54.3	55	
R3+Minor+W1(General)+C2+P2+P2					X		X						X	N/A	X		N/A	X		N/A	X		X				N/A	Res	58.6	59	
R3+Minor+W1(General)+C3+P2+P2					X		X						X	N/A		X	N/A	X		N/A	X		X				N/A	Res	56	56	
R2+Minor+W1(General)+C2+P3+P2					X		X						X	N/A	X		N/A		X	N/A	X		X				N/A	Res	51.3	52	
R2+Minor+W1(General)+C3+P3+P2					X		X						X	N/A		X	N/A		X	N/A	X		X				N/A	Res	48.7	49	
R3+Minor+W1+Cap/Met					X		X				X			N/A			N/A			N/A				X			N/A	Perm	46.6	47	
R2+Minor+W2+Cap/Met					X		X					X		N/A			N/A			N/A				X			N/A	Perm	44.6	45	
R2+Minor+W1(General)+Cap/Met					X		X						X	N/A			N/A			N/A				X			N/A	Perm	45	45	
R3+Minor+W1+C2+Cap/Met					X		X				X			N/A	X		N/A			N/A				X			N/A	Perm	50.6	51	
R3+Minor+W1+C3+Cap/Met					X		X				X			N/A		X	N/A			N/A				X			N/A	Perm	49.6	50	
R3+Minor+W2+C2+Cap/Met					X		X					X		N/A	X		N/A			N/A				X			N/A	Perm	48.6	49	
R2+Minor+W2+C3+Cap/Met					X		X					X		N/A		X	N/A			N/A				X			N/A	Perm	47.6	48	
R3+Minor+W1(General)+C2+Cap/Met					X		X						X	N/A	X		N/A			N/A				X			N/A	Perm	50.6	51	
R3+Minor+W1(General)+C3+Cap/Met					X		X						X	N/A		X	N/A			N/A				X			N/A	Perm	48	48	
R3+Minor+W1+P2+Cap/Met					X		X				X			N/A			N/A	X		N/A				X			N/A	Perm	47.3	48	
R3+Minor+W1+P3+Cap/Met					X		X				X			N/A			N/A		X	N/A				X			N/A	Perm	47.3	48	
R3+Minor+W2+P2+Cap/Met					X		X					X		N/A			N/A	X		N/A				X			N/A	Perm	45.3	46	
R2+Minor+W2+P3+Cap/Met					X		X					X		N/A			N/A		X	N/A				X			N/A	Perm	45.2	46	
R3+Minor+W1(General)+P2+Cap/Met					X		X						X	N/A			N/A	X		N/A				X			N/A	Perm	48.7	48	
R3+Minor+W1(General)+P3+Cap/Met					X		X						X	N/A			N/A		X	N/A				X			N/A	Perm	48.7	48	
R3+Minor+W1+C2+P2+Cap/Met					X		X				X			N/A	X		N/A	X		N/A				X			N/A	Perm	53.3	52	
R2+Minor+W1+C3+P2+Cap/Met					X		X				X			N/A		X	N/A	X		N/A				X			N/A	Perm	50.3	51	
R2+Minor+W1+C2+P3+Cap/Met					X		X				X			N/A	X		N/A		X	N/A				X			N/A	Perm	51.3	52	
R3+Minor+W1+C3+P3+Cap/Met					X		X				X			N/A		X	N/A		X	N/A				X			N/A	Perm	50.3	51	
R3+Minor+W2+C2+P2+Cap/Met					X		X					X		N/A	X		N/A	X		N/A				X			N/A	Perm	49.3	50	
R2+Minor+W2+C3+P2+Cap/Met					X		X					X		N/A		X	N/A	X		N/A				X			N/A	Perm	48.3	49	
R2+Minor+W2+C2+P3+Cap/Met					X		X					X		N/A	X		N/A		X	N/A				X			N/A	Perm	48.3	50	
R3+Minor+W2+C3+P3+Cap/Met					X		X					X		N/A		X	N/A		X	N/A				X			N/A	Perm	48.3	49	
R3+Minor+W1(General)+C2+P2+Cap/Met					X		X						X	N/A	X		N/A	X		N/A				X			N/A	Perm	53.3	52	
R3+Minor+W1(General)+C3+P2+Cap/Met					X		X						X	N/A		X	N/A	X		N/A				X			N/A	Perm	86.8	87	
R2+Minor+W1(General)+C2+P3+Cap/Met					X		X						X	N/A	X		N/A		X	N/A				X			N/A	Perm	93.8	92	
R3+Minor+W1(General)+C3+P3+Cap/Met					X		X						X	N/A		X	N/A		X	N/A				X			N/A	Perm	90.3	91	
R2+Minor+W1+TC					X		X				X			N/A			N/A			N/A					X		N/A	Perm	46.6	47	Cross sections assume angled parking (6m parking bay + 4m lane as per QHDM)
R2+Minor+W2+TC					X		X					X		N/A			N/A			N/A					X		N/A	Perm	44.6	45	
R3+Minor+W1(General)+TC					X		X						X	N/A			N/A			N/A					X		N/A	Perm	43	43	
R3+Minor+W1+C2+TC					X		X				X			N/A	X		N/A			N/A					X		N/A	Perm	50.6	51	
R3+Minor+W1+C3+TC					X		X				X			N/A		X	N/A			N/A					X		N/A	Perm	49.6	50	
R3+Minor+W2+C2+TC					X		X					X		N/A	X		N/A			N/A					X		N/A	Perm	48.6	49	

APPENDIX C

Label	Stage 1 - Road Typology									Stage 2 - Mode Specific													Stage 3 - Context Specific				Service Road / Frontage Road	Parking	Cross Section Width	Rounded Up Cross Section Width	Cross Section Specific Notes
										No specific	Walking			Cycling			Public Transport			Freight												
	Urban	Rural	Exp'way (R1)	Arterial (R2)	Collector (R3)	Local (R4)	Low Volume	Average Volume	High Volume		Prestige (W1)	City (W2)	General	State (C1)	City (C2)	Local (C3)	Dedicated (P1)	Priority (P2)	Local (P3)	State Sig (F1)	Major (F2)	Local F3)	No Specific	Capital City / Met Centre	Town Center	Economic / Industrial					
Expressway																															
R3+Minor+W2+C3+TC					X		X					X				X	N/A			N/A					X		N/A	Perm	47.6	48	
R3+Minor+W1&[General]+C2+TC					X		X						X	N/A	X		N/A			N/A					X		N/A	Perm	48.6	49	
R3+Minor+W1&[General]+C3+TC					X		X						X	N/A		X	N/A			N/A					X		N/A	Perm	46	46	
R3+Minor+W1+P2+TC					X		X				X			N/A			N/A	X		N/A					X		N/A	Perm	47.3	48	
R3+Minor+W1+P3+TC					X		X				X			N/A			N/A		X	N/A					X		N/A	Perm	47.3	48	
R3+Minor+W2+P2+TC					X		X					X		N/A			N/A	X		N/A					X		N/A	Perm	45.3	46	
R3+Minor+W2+P3+TC					X		X					X		N/A			N/A		X	N/A					X		N/A	Perm	46.3	46	
R3+Minor+W&[General]+P2+TC					X		X						X	N/A			N/A	X		N/A					X		N/A	Perm	43.7	44	
R3+Minor+W&[General]+P3+TC					X		X						X	N/A			N/A		X	N/A					X		N/A	Perm	43.7	44	
R3+Minor+W1+C2+P2+TC					X		X				X			N/A	X		N/A	X		N/A					X		N/A	Perm	51.3	52	
R3+Minor+W1+C2+P2+TC					X		X				X			N/A		X	N/A	X		N/A					X		N/A	Perm	50.3	51	
R3+Minor+W1+C3+P3+TC					X		X				X			N/A	X		N/A		X	N/A					X		N/A	Perm	51.3	52	
R3+Minor+W1+C3+P3+TC					X		X				X			N/A		X	N/A		X	N/A					X		N/A	Perm	50.3	51	
R3+Minor+W2+C2+P2+TC					X		X					X		N/A	X		N/A	X		N/A					X		N/A	Perm	49.3	50	
R3+Minor+W2+C3+P2+TC					X		X					X		N/A		X	N/A	X		N/A					X		N/A	Perm	48.3	49	
R3+Minor+W2+C2+P3+TC					X		X					X		N/A	X		N/A		X	N/A					X		N/A	Perm	49.3	50	
R3+Minor+W2+C3+P3+TC					X		X					X		N/A		X	N/A		X	N/A					X		N/A	Perm	48.3	49	
R3+Minor+W&[General]+C2+P2+TC					X		X						X	N/A	X		N/A	X		N/A					X		N/A	Perm	49.3	50	
R3+Minor+W&[General]+C3+P2+TC					X		X						X	N/A		X	N/A	X		N/A					X		N/A	Perm	48.3	49	
R3+Minor+W&[General]+C2+P3+TC					X		X						X	N/A	X		N/A		X	N/A					X		N/A	Perm	49.3	50	
R3+Minor+W&[General]+C3+P3+TC					X		X						X	N/A		X	N/A		X	N/A					X		N/A	Perm	46.3	47	
R3+Minor+F2+E					X		X			X				N/A			N/A			N/A	X					X	N/A	Perm	39.8	40	
R3+Minor+W1+F2+E					X		X				X			N/A			N/A			N/A	X					X	N/A	Perm	53.8	54	
R3+Minor+W2+F2+E					X		X					X		N/A			N/A			N/A	X					X	N/A	Perm	51.3	52	
R3+Minor+W&[General]+F2+E					X		X						X	N/A			N/A			N/A	X					X	N/A	Perm	45.7	46	
R3+Minor+W1+C2+F2+E					X		X				X			N/A	X		N/A			N/A	X					X	N/A	Perm	57.8	58	
R3+Minor+W1+C3+F2+E					X		X				X			N/A		X	N/A			N/A	X					X	N/A	Perm	56.8	57	
R3+Minor+W2+C2+F2+E					X		X					X		N/A	X		N/A			N/A	X					X	N/A	Perm	55.3	56	
R3+Minor+W2+C3+F2+E					X		X					X		N/A		X	N/A			N/A	X					X	N/A	Perm	51.3	52	
R3+Minor+W&[General]+C2+F2+E					X		X						X	N/A	X		N/A			N/A	X					X	N/A	Perm	51.8	52	
R3+Minor+W&[General]+C3+F2+E					X		X						X	N/A		X	N/A			N/A	X					X	N/A	Perm	42.3	43	
R3+Minor+W1+F2+F2+E					X		X				X			N/A			N/A	X		N/A	X					X	N/A	Perm	60.6	61	
R3+Minor+W1+F3+F2+E					X		X				X			N/A			N/A		X	N/A	X					X	N/A	Perm	53.3	54	
R3+Minor+W2+F2+F2+E					X		X					X		N/A			N/A	X		N/A	X					X	N/A	Perm	58.6	59	
R3+Minor+W2+F3+F2+E					X		X					X		N/A			N/A		X	N/A	X					X	N/A	Perm	51.3	52	
R3+Minor+W&[General]+F2+F2+E					X		X						X	N/A			N/A			N/A	X					X	N/A	Perm	53	53	
R3+Minor+W&[General]+F3+F2+E					X		X						X	N/A			N/A			N/A	X					X	N/A	Perm	46.7	46	
R3+Minor+W1+C2+F2+F2+E					X		X				X			N/A	X		N/A	X		N/A	X					X	N/A	Perm	64.6	65	
R3+Minor+W1+C3+F2+F2+E					X		X				X			N/A		X	N/A	X		N/A	X					X	N/A	Perm	63.6	64	
R3+Minor+W1+C2+F3+F2+E					X		X				X			N/A	X		N/A		X	N/A	X					X	N/A	Perm	57.3	58	
R3+Minor+W1+C3+F2+F2+E					X		X				X			N/A		X	N/A		X	N/A	X					X	N/A	Perm	56.8	57	
R3+Minor+W2+C2+F2+F2+E					X		X					X		N/A	X		N/A	X		N/A	X					X	N/A	Perm	62.6	63	
R3+Minor+W2+C3+F2+F2+E					X		X					X		N/A		X	N/A	X		N/A	X					X	N/A	Perm	58.6	59	
R3+Minor+W2+C2+F3+F2+E					X		X					X		N/A	X		N/A		X	N/A	X					X	N/A	Perm	55.3	56	
R3+Minor+W2+C3+F3+F2+E					X		X					X		N/A		X	N/A		X	N/A	X					X	N/A	Perm	51.3	52	
R3+Minor+W&[General]+C2+F2+F2+E					X		X						X	N/A	X		N/A	X		N/A	X					X	N/A	Perm	58.6	59	
R3+Minor+W&[General]+C3+F2+F2+E					X		X						X	N/A		X	N/A	X		N/A	X					X	N/A	Perm	49.6	50	
R3+Minor+W&[General]+C2+F3+F2+E					X		X						X	N/A	X		N/A		X	N/A	X					X	N/A	Perm	51.8	52	
R3+Minor+W&[General]+C3+F3+F2+E					X		X						X	N/A		X	N/A		X	N/A	X					X	N/A	Perm	42.8	43	
R3+Minor+F3+E					X		X			X				N/A			N/A			N/A		X				X	N/A	Perm	34	34	
R3+Minor+W1+F3+E					X		X				X			N/A			N/A			N/A		X				X	N/A	Perm	48	48	
R3+Minor+W2+F3+E					X		X					X		N/A			N/A			N/A		X				X	N/A	Perm	46	46	
R3+Minor+W&[General]+F3+E					X		X						X	N/A			N/A			N/A		X				X	N/A	Perm	40.4	41	
R3+Minor+W1+C2+F3+E					X		X				X			N/A	X		N/A			N/A		X				X	N/A	Perm	52	52	
R3+Minor+W1+C3+F3+E					X		X				X			N/A		X	N/A			N/A		X				X	N/A	Perm	51	51	
R3+Minor+W2+C2+F3+E					X		X					X		N/A	X		N/A			N/A		X				X	N/A	Perm	50	50	
R3+Minor+W2+C3+F3+E					X		X					X		N/A		X	N/A			N/A		X				X	N/A	Perm	49	49	
R3+Minor+W&[General]+C2+F3+E					X		X						X	N/A	X		N/A			N/A		X				X	N/A	Perm	46	46	
R3+Minor+W&[General]+C3+F3+E					X		X						X	N/A		X	N/A			N/A		X				X	N/A	Perm	43.4	44	
R3+Minor+W1+F2+F3+E					X		X				X			N/A			N/A	X		N/A		X				X	N/A	Perm	55.3	56	
R3+Minor+W1+F3+F3+E					X		X				X			N/A			N/A		X	N/A		X				X	N/A	Perm	40.7	41	
R3+Minor+W2+F2+F3+E					X		X					X		N/A			N/A	X		N/A		X				X	N/A	Perm	53.3	54	
R3+Minor+W2+F3+F3+E					X		X					X		N/A			N/A		X	N/A		X				X	N/A	Perm	46	46	
R3+Minor+W&[General]+F2+F3+E					X		X						X	N/A			N/A	X		N/A		X				X	N/A	Perm	47.7	48	
R3+Minor+W&[General]+F3+F3+E					X		X						X	N/A			N/A		X	N/A		X				X	N/A	Perm	40.4	41	
R3+Minor+W1+C2+F3+F3+E					X		X				X			N/A	X		N/A	X		N/A		X				X	N/A	Perm	59.3	60	
R3+Minor+W1+C3+F2+F3+E					X		X				X			N/A		X	N/A	X		N/A		X				X	N/A	Perm	58.3	59	
R3+Minor+W1+C2+F3+F3+E					X		X				X			N/A	X		N/A		X	N/A		X				X	N/A	Perm	53	53	
R3+Minor+W1+C3+F3+F3+E					X		X				X			N/A		X	N/A		X	N/A		X				X	N/A	Perm	44.7	45	
R3+Minor+W2+C2+F2+F3+E					X		X					X		N/A	X		N/A	X		N/A		X				X	N/A	Perm	57.3	58	
R3+Minor+W2+C3+F2+F3+E					X		X					X		N/A		X	N/A	X		N/A		X				X	N/A	Perm	56.8	57	
R3+Minor+W2+C2+F3+F3+E					X		X					X		N/A	X		N/A		X	N/A		X				X	N/A	Perm	50	50	
R3+Minor+W2+C3+F3+F3+E					X		X					X		N/A		X	N/A		X	N/A		X				X	N/A	Perm	49	49	
R3+Minor+W&[General]+C2+F2+F3+E					X		X						X	N/A	X		N/A	X		N/A		X				X	N/A	Perm	53.3	54	
R3+Minor+W&[General]+C3+F2+F3+E					X		X						X	N/A		X	N/A	X		N/A		X				X	N/A	Perm	50.7	51	
R3+Minor+W&[General]+C2+F3+F3+E					X		X						X	N/A	X		N/A		X	N/A		X				X	N/A	Perm	46	46	
R3+Minor+W&[General]+C3+F3+F3+E					X		X						X	N/A		X	N/A		X	N/A		X				X	N/A	Perm	38.7	39	

Typical Cross Sections

Label	Stage 1 - Road Typology									Stage 2 - Mode Specific												Stage 3 - Context Specific				Service Road / Frontage Road	Parking	Cross Section Width	Rounded Up Cross Section Width	Cross Section Specific Notes
										No specific	Walking			Cycling			Public Transport			Freight											
	Urban	Rural	Expressway (R1)	Arterial (R2)	Collector (R3)	Local (R4)	Low Volume	Average Volume	High Volume		Prestige (W1)	City (W2)	General	State (C1)	City (C2)	Local (C3)	Dedicated (P1)	Priority (P2)	Local (P3)	State Sig (F1)	Major (F2)	Local F3)	No Specific	Capital City / Met Centre	Town Center	Economic / Industrial					
Expressway																														
Local Roads																														
R4+Wlk(General)						X	N/A	N/A	N/A		N/A	N/A	X	N/A	N/A		N/A	N/A		N/A	N/A		X				N/A	Perm	18.7	19	
R4+Wlk(General)+C3						X	N/A	N/A	N/A		N/A	N/A	X	N/A	N/A	X	N/A	N/A		N/A	N/A		X				N/A	Perm	21.7	22	
R4+Wlk(General)+P3						X	N/A	N/A	N/A		N/A	N/A	X	N/A	N/A		N/A	N/A	X	N/A	N/A		X				N/A	Perm	18.7	19	
R4+Wlk(General)+C3+P3						X	N/A	N/A	N/A		N/A	N/A	X	N/A	N/A	X	N/A	N/A	X	N/A	N/A		X				N/A	Perm	21.7	22	
R4+Wlk(General)+Cap/Met						X	N/A	N/A	N/A		N/A	N/A	X	N/A	N/A		N/A	N/A		N/A	N/A			X			N/A	Perm	20	20	Cross sections assume parallel parking
R4+Wlk(General)+C3+Cap/Met						X	N/A	N/A	N/A		N/A	N/A	X	N/A	N/A	X	N/A	N/A		N/A	N/A			X			N/A	Perm	23	23	
R4+Wlk(General)+P3+Cap/Met						X	N/A	N/A	N/A		N/A	N/A	X	N/A	N/A		N/A	N/A	X	N/A	N/A			X			N/A	Perm	15.7	16	
R4+Wlk(General)+C3+P3+Cap/Met						X	N/A	N/A	N/A		N/A	N/A	X	N/A	N/A	X	N/A	N/A	X	N/A	N/A			X			N/A	Perm	18.7	19	
R4+Wlk(General)+TC						X	N/A	N/A	N/A		N/A	N/A	X	N/A	N/A		N/A	N/A		N/A	N/A				X		N/A	Perm	20	20	
R4+Wlk(General)+C3+TC						X	N/A	N/A	N/A		N/A	N/A	X	N/A	N/A	X	N/A	N/A		N/A	N/A				X		N/A	Perm	23	23	
R4+Wlk(General)+P3+TC						X	N/A	N/A	N/A		N/A	N/A	X	N/A	N/A		N/A	N/A	X	N/A	N/A				X		N/A	Perm	15.7	16	
R4+Wlk(General)+C3+P3+TC						X	N/A	N/A	N/A		N/A	N/A	X	N/A	N/A	X	N/A	N/A	X	N/A	N/A				X		N/A	Perm	18.7	19	
R4+Wlk(General)						X	N/A	N/A	N/A		N/A	N/A	X	N/A	N/A		N/A	N/A		N/A	N/A		X				N/A	Perm	26.4	27	Cross sections assume angled parking (6m parking bay + 4m lane as per QHDM)
R4+Wlk(General)+C3						X	N/A	N/A	N/A		N/A	N/A	X	N/A	N/A	X	N/A	N/A		N/A	N/A		X				N/A	Perm	23	23	
R4+Wlk(General)+P3						X	N/A	N/A	N/A		N/A	N/A	X	N/A	N/A		N/A	N/A	X	N/A	N/A		X				N/A	Perm	26.4	27	
R4+Wlk(General)+C3+P3						X	N/A	N/A	N/A		N/A	N/A	X	N/A	N/A	X	N/A	N/A	X	N/A	N/A		X				N/A	Perm	23	23	
R4+Wlk(General)+Cap/Met						X	N/A	N/A	N/A		N/A	N/A	X	N/A	N/A		N/A	N/A		N/A	N/A			X			N/A	Perm	28.4	29	
R4+Wlk(General)+C3+Cap/Met						X	N/A	N/A	N/A		N/A	N/A	X	N/A	N/A	X	N/A	N/A		N/A	N/A			X			N/A	Perm	31.4	32	
R4+Wlk(General)+P3+Cap/Met						X	N/A	N/A	N/A		N/A	N/A	X	N/A	N/A		N/A	N/A	X	N/A	N/A			X			N/A	Perm	28.4	29	
R4+Wlk(General)+C3+P3+Cap/Met						X	N/A	N/A	N/A		N/A	N/A	X	N/A	N/A	X	N/A	N/A	X	N/A	N/A			X			N/A	Perm	31.4	32	
R4+Wlk(General)+TC						X	N/A	N/A	N/A		N/A	N/A	X	N/A	N/A		N/A	N/A		N/A	N/A				X		N/A	Perm	21.4	22	
R4+Wlk(General)+C3+TC						X	N/A	N/A	N/A		N/A	N/A	X	N/A	N/A	X	N/A	N/A		N/A	N/A				X		N/A	Perm	24.4	25	
R4+Wlk(General)+P3+TC						X	N/A	N/A	N/A		N/A	N/A	X	N/A	N/A		N/A	N/A	X	N/A	N/A				X		N/A	Perm	21.4	22	
R4+Wlk(General)+C3+P3+TC						X	N/A	N/A	N/A		N/A	N/A	X	N/A	N/A	X	N/A	N/A	X	N/A	N/A				X		N/A	Perm	24.4	25	

APPENDIX C

وزارة المواصلات
MINISTRY OF TRANSPORT

ص.ب. 24455 P.O. Box
الدوحة, قطر Doha, Qatar
ت 1111 4045 974+ T
motc.gov.qa

نقل متكامل ومستدام للجميع
INTEGRATED & SUSTAINABLE TRANSPORT FOR ALL