

Memo



Date: January 19, 2011
File: 02-0220
To: City Manager
From: R. Cleveland, Director, Infrastructure Planning with
J. Behl, Manager, Transportation & Mobility
Subject: 2030 *draft* 20-year Servicing Plan and Financial Strategy
Transportation Network

Recommendation:

THAT Council directs staff to seek input from the public and the development community and to report back to Council with recommendations regarding a revised network plan as required.

Purpose:

To secure Council support to proceed with public consultation on the proposed general arrangement of improvements to the transportation network to accommodate growth anticipated in the *draft* 2030 OCP.

Background:

The OCP recognizes the following challenges regarding the interdependency of transportation and land use:

- Car ownership, kilometer miles traveled and greenhouse gas emissions increase with lower density development patterns;
- Low density development cannot be supported by public transit; low density development is linked to increased road deaths, obesity, and an increasing proportion of household income devoted to transportation relative to shelter and food costs;
- Kelowna has the highest rate of car dependency in Canada and on-road transportation is responsible for 65% of Kelowna's greenhouse gases;
- Municipal infrastructure capital and operating costs increase with lower density development patterns;
- An increasing proportion of taxation is being devoted to the operation and maintenance of a growing inventory of municipal infrastructure and taxation is insufficient to finance the eventual replacement of that infrastructure as it ages, i.e. there is a growing national infrastructure deficit;
- Transportation choices are directly related to the relative speed of transit to traffic. This means that reduction in car dependency requires the relative improvement in the speed and cost of alternatives to car travel;
- Cities around the world are focusing on smart growth including mixed-use higher density development in already urbanized areas to increase the positive impacts of density including reduced automobile dependency;
- Cities around the world, recognizing that it is not affordable or effective to build road capacity to relieve congestion, are layering alternative transportation systems (public rapid bus, light/heavy rail, transit, bikeways/lanes and pedestrian infrastructure) over the road networks and using demand management techniques to:
 - reduce the need for road building
 - reduce the negative economic, social and environmental impacts of driving cars, especially single occupancy vehicles (SOVs).

Therefore the focus of the OCP regarding the interdependency between land use and transportation is to:

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- Establish a permanent urban growth boundary to facilitate increasing density in already urbanized areas to
 - reduce the need for vehicle trips
 - optimize the use of existing infrastructure before building new infrastructure;
- Provide reliable transportation choices (transit, cycling, walking) that are equally convenient and efficient in terms of time and money relative to SOVs through a mixture of land-use designations and transportation infrastructure investments;
- Focus on moving people rather than cars.

It is recognized however, that past decisions are irreversible and that already zoned suburban development will continue for some time, resulting in continuing investment in the infrastructure required to service low-density suburban sub-divisions.

The proposed 2030 20-year Servicing Plan and Financing Strategy (DCC Plan) has the following key network strategies:

1. Increase capacity of the existing arterial road system by providing new alternative routes to provide choice (new South Perimeter and realigned Stewart Road, new E-W Connector, new Hollywood North (McCurdy to UBCO), extended COMC (Spall to Hwy 33).
 - a. Articulate the system for commercial goods and services by extending Clement from Spall to Hwy #33; this also improves linkages between existing industrial areas.
2. Provide opportunities for traffic to redistribute to existing road infrastructure through driver choice to alternative routes (Rose/Guisachan expansion to redistribute KGH traffic from Pandosy to Richter and Gordon; DeHart expansion to redistribute from Lakeshore to Gordon & Swamp; South Perimeter construction to redistribute from Gordon and Lakeshore to Stewart and Benvoulin; see attached map).
 - a. Shorten the route to UBCO for the NW quadrant of the city through the construction of the E-W connector between Glenmore Road and UBCO/Airport. This will divert traffic from the geographically constrained, high value commercial mid-town area between Spall and Highway #33
3. Provide safe sustainable transportation options with at least one continuous multi-use pathway between the Downtown, Pandosy Town Centre and Okanagan College; between Downtown, Mid-town Highway Centre and Rutland Town Centre and then on to UBCO; and from Downtown to Glenmore Village Centre to UBCO. Surveys done by the City of Portland show that 60% of all commuters will consider cycling if safe corridors exist and if sufficient trip-end facilities (bike storage, showers and lockers) are provided at places of employment. This reduces the need for the expansion of additional vehicle lanes and provides the additional capacity for future growth.
4. Ensure that all new arterials support active transportation with:
 - a. boulevards and sidewalks to promote walking to transit, nearby jobs, and to commercial, institutional, and recreational services;
 - b. cycling lanes, either 2 on-street lanes or multi-use pathway.

An overview of the proposed transportation changes relative to the 2020 Servicing Plan and Financing Strategy is in Annex 1. The summary description of projects in the 2030 DCC Plan is in Annex 2. Maps are also attached.

It is also suggested that additional focused demand management initiatives are needed to overcome automobile dependency. The following TDM measures are beyond the scope of the 2030 DCC Plan:

- Pursue integrated land use and transportation planning at the local and regional levels aiming to accommodate growth through regional land use intensification rather than low-density sprawl;
- Lobby federal and provincial governments through the UBCM for additional investments in multi-modal transportation infrastructure;
- Improve the time ratio of transit over traffic by increasing the density and frequency of transit in the urbanized core, providing transit pull-out priority from pull-out bus bays, and improving the

functionality and connectivity of sidewalk networks and cycle lanes to transit facilities (see Annex 3);

- Recognize the full cost of driving and congestion through increases in the cost of parking primarily for employees, pay as you go insurance;
- Pursue means to provide income tax deductions for an individual's public transit costs;
- Strengthen requirements for cycle facilities at places of employment;

Key traffic performance parameters were modeled to determine the impacts of the following investment scenarios:

1. Base case is the measured 2008 performance of the road network that existed at that time
2. "2030/2010" is projected 2030 growth on the existing road network, i.e. 'do nothing'
3. "2030/2020" is the projected 2030 growth on the old 2020 road network plan expanded only to increase road capacity using current travel preferences and limited mode choices. Approximate cost = \$800M
4. "2030/2030" is the projected 2030 growth on the proposed plan with reduced vehicle capacity expansions and increased active transportation arterials. This scenario showed the most 'balanced' distribution of traffic over the entire network and expects the achievement of a 33% non-SOV modal split in the urbanized core by 2030 (note that the existing AM/PM splits are already 18%/14%). Estimated approximate Total Cost = \$400M

The proposed 2030/2030 "Balanced" scenario is the best network available using the current levels of DCC investment. It begins to develop the alternative sustainable infrastructures for transit, walking and biking that will provide the choices that will address the OCP objectives.

Increasing road capacity without providing sustainable transportation choices would not be as effective. The majority of all additional arterial road capacity created would fill-up with trips generated by existing travelers, not in the accommodation of new traffic generated through growth.

54% of Kelowna's working population lives closer than a 5km commute and 85% of Kelowna's working population lives closer than a 10km commute. Generally people will walk 2.5km and cycle 7.5km (30minutes) to work. Therefore, Kelowna is well positioned to use walking and biking infrastructure. Given safe, uninterrupted year-round door-to-door infrastructure and destination facilities, appropriate price signals and social marketing regarding full costs, health and taxation burden, Kelowna's car dependency could be significantly reduced.

Internal Circulation:

- S. Bagh, Director, Policy & Planning
- K. Grayston, Director, Financial Services
- R. Westlake, Director, Regional Services

Legal/Statutory Authority:

The Development Cost Charge (DCC) Bylaw No. 9095 sets out the charges imposed for public roads, water, sanitary sewer, drainage and public park infrastructure when subdividing or constructing, altering or extending a building, pursuant to Chapter 323, Part 26, Division 10 of the Local Government Act (R.S.B.C., 2000). Most recently the bylaw was amended by Bylaw No. 10117 (February 2, 2009) which updated project costs to reflect 2009 tender results and new information regarding the scope and design refinements of the required projects. The DCC Bylaw is supported by the 20-year Servicing Plan and Financial Strategy. The 20-year plan accounts for the impacts on the City's infrastructure created by the residential and institutional, commercial and industrial (ICI) growth anticipated in the official Community Plan.

The DCC Best Practices Guide published by the BC Ministry of Community Services (2005) allows the following transportation infrastructure to be supported through DCC charges:

"With respect to road projects, only off-street parking facilities are specifically excluded from a road DCC program. However, in keeping with the intent of the charges, a road DCC program typically consists of transportation network elements such as Arterial and Major Collector Roads.

Local and Minor Collector Roads are generally not included, as these roads are often constructed by frontage developments as a requirement of subdivision approval. The Road DCC program is an outcome of master transportation planning, and “highway facilities” have been interpreted, in practice, to include projects such as:

- Master transportation planning work;
- Roads;
- Sidewalks and pedestrian facilities;
- Traffic signals and controls;
- Boulevards and boulevard landscaping;
- Noise attenuation structures;
- Medians;
- Curb and gutter;
- Street lighting;
- Underground wiring;
- Drainage facilities within roadways;
- Pedestrian and highway bridges;
- Intersection channelization;
- Transit provisions such as bus pull-ins; and
- Bicycle/pedestrian infrastructure.

Legal/Statutory Procedural Requirements:

The DCC plan is currently being revised to analyze the impact of the *draft* 2030 OCP on the City’s municipal infrastructure. The Bylaw will be largely re-written to reflect the changes from the existing DCC plan that supports the current 2020 OCP. The new plan will:

- Update project costs to reflect more recent construction costs
- Remove projects in the 2020 plan that have been completed
- Remove, revise the scope and add projects that respond to the locations and magnitude of projected growth in the draft 2030 OCP
- Recalculate the DCC charges based on the planned projects divided by the anticipated units of residential and ICI construction in each sector.

The revised bylaw, following public consultation requirements and then approved by Council, will be submitted to the provincial government for ratification. This is scheduled for Spring 2011.

Existing Policy:

Chapter 7 of the *draft* 2030 OCP covers Municipal Infrastructure. The following objectives are related to Transportation:

- General: To support sustainability, Kelowna will: Design transportation routes to prioritize investment in transit, pedestrians and bicycle infrastructure in order to increase mobility choices for residents and minimize the use of single occupancy vehicles --- one of the largest producers of greenhouse gases;
- Objective 7.5: Place increased emphasis on sustainable modes of transportation (walking, cycling, transit) while maintaining automobile, commercial goods and emergency vehicle mobility.
- Objective 7.6: Reduce peak hour trips and the percentage of trips undertaken by single occupant vehicles, particularly in Urban Centres, in order to reduce or eliminate the expansion of the transportation network and capacity.
- Objective 7.7: Provide more active transportation infrastructure to: increase resilience in the face of higher energy prices; improve community health; and reduce greenhouse gas emissions.
- Objective 7.8: Ensure efficient and effective transit infrastructure and facilities.
- Objective 7.9: Ensure roadway planning supports sustainability goals.
- Objective 7.10: Implement parking management programs that promote reduced car ownership, reduced car trips and increased use of active modes of transportation

Council Policy #352, Sustainable Municipal Infrastructure, provides for a multiple bottom line assessment of major infrastructure investment. In the future, the Infrastructure Planning Department will also need to take action to strengthen the infrastructure policy framework for smaller personalized transport vehicles, alternative energy infrastructure (electric or hydrogen vehicles), public bike systems and zoning requirements for sustainable transportation infrastructures.

Financial/Budgetary Considerations:

DCCs contribute to the initial capital cost of growth-related infrastructure, along with taxpayer contributions that account for the benefit of the new infrastructure to the existing community. The subsequent operation, maintenance, capital renewal (repaving, line painting, traffic signal/control replacements, etc.) and the eventual replacement of all infrastructures accrues to general taxation. The expectation is that the property taxes generated by the new development will pay the costs beyond the original capital construction. Historically in Canada, property taxation has not been adequate to cover asset management costs resulting in a growing deficit between needed replacement infrastructure and property tax revenues. As a result, municipalities are developing new approaches to infrastructure development that are more cost-effective over the long term including road dieting and other sustainable forms of transportation.

The estimated impact of the proposed 2030 20-year Servicing Plan and Financing Strategy on the DCC rates follows. Note that Kelowna has 12 sectors reflecting differences in:

- the available municipal services; only 2 sectors are serviced by the Kelowna water utility and 2 sectors are not serviced by the waste water collection and treatment utility
- the variable costs of infrastructure; hillsides, remote and or low density developments are more costly to service than the urban core area

The DCC charge for the urbanized core area, which represents 50% of Kelowna’s population, is the median rate for BC municipalities larger than 75,000 people. Communities of this size provide a similar range of municipal services. The DCC charge for the South Mission is the highest DCC rate in Kelowna reflecting the higher cost of infrastructure in low-density developments distant from the urban centre (longer roads and piped services/unit), especially when located on hillsides (pumping water/sewer facilities, additional drainage infrastructure, greater technical construction challenges).

Table 1: Analysis of changes in DCC rates in the City Centre and South Mission

System	Current City Centre	2030 DCC for City Centre	% Change In City Centre	Current South Mission	2030 DCC for South Mission	% Change In South Mission
Water	\$1,757	998	-43.2%	\$1,289	\$679	-47.3%
Wastewater Trunks	\$1,562	\$1,294	-17.2%	\$1,979	\$1,903	-3.8%
Wastewater Treatment*	\$3,044	\$3,722	+22.3%	\$3,044	\$3,722	+22.3%
Parks	\$5,069	\$5,300	+4.6%	\$5,069	\$5,300	+4.6%
Transportation	\$9,176	\$7,461	-18.7%	\$23,743	\$23,358	-1.6%
TOTAL	\$20,608	\$18,775	-8.9%	\$35,124	\$34,963	-0.5%

Notes:

* Wastewater Treatment DCC increases primarily reflect the financing cost of the recent expansion of the treatment facilities at Raymer Avenue

The impact of the asset management plan for existing and new infrastructure on taxation, user fees and transfers from senior governments is under study.

External Agency/Public Comments:

Annex 4 provides survey information collected during the development of the draft OCP. 64% indicated that the way transportation infrastructure has been provided within the past 10 years is not sustainable. 95% felt that the City should do more to ensure that future transportation infrastructure is sustainable.

The City will place a draft of the 2030 20-year Servicing Plan and Financial Strategy on the City website. Staff will conduct joint public open houses on both the *draft* OCP and the *draft* DCC Plan simultaneously for various stakeholders in appropriate locations in early 2011 per the following tentative schedule.

February 17 (Thursday): Laurel Packinghouse or other downtown location

February 19 (Saturday): PRC or other mid-town/Rutland/Glenmore location

February 23 (Wednesday): Mission Community Hall or other Lower/South Mission location

A separate meeting with the development industry and other stakeholders (ICBC, Ministry of Transportation, School District #23, Utility companies, etc.) will also be conducted. Exit surveys will be available at the open houses for written input. Staff will be available to record questions from those with disabilities. Staff will report back to Council with a summary of input from these consultations and further recommendations.

The issues will be discussed at the open houses and not through phone calls. Only written questions from the public will be addressed in a separate report that will be published on line.

Considerations not applicable to this report:

Legal/Statutory Authority:

Personnel Implications:

Community & Media Relations Comments:

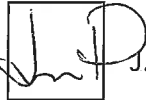
Alternate Recommendation:

Submitted by:



R. Cleveland, Director, Infrastructure Planning

Approved for inclusion:



J. Paterson, General Manager, Community Sustainability

Annexes

1. 2030 Transportation Network compared to existing 2020 Network - Significant Differences
2. 2030 Road Network Projects and 2030 DCC Active Transportation Network Projects
3. The Benefits of Transit
4. ANNEX 4: 2030 OCP Survey Data

Attachments

Map: 2030 DCC Arterial Road Network

Map: 2030 DCC Arterial Active Transportation Network

Summary DCC cost sheet of 2030 transportation network program

cc: J. Vos, General Manager, Community Services

S. Bagh, Director, Policy & Planning

K. Grayston, Director, Financial Services

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ANNEX 1: 2030 Transportation Network compared to existing 2020 Network - Significant Differences (subject to final review)

Completed Projects

- Benvoulin 2 - Cooper Rd to Springfield Rd
- Chute Lake 1 - Frost Rd to South Perimeter Rd
- Chute Lake 2 - Barnaby Rd to Frost Rd
- Clifton 1 & High 2 - Mountain Ave to Cara Glen Way
- COB A - Graham Rd to Cerise Dr
- COB 1 - Cerise Dr to Spall Rd
- Dehart 1 (2L) - Lakeshore Rd to Gordon Dr
- Dehart 3 - Gordon Dr to Swamp Rd
- Enterprise 1 - Banks Rd to Leathead Rd
- Frost 2 - Killdeer Rd to South Ridge Dr
- Frost 3 - South Ridge Dr to Gordon Dr
- Gallagher 3 - Hwy 33 E to Treetop Rd
- Glenmore 1 - High Rd to Dallas Rd
- Glenmore 2 - Dallas Rd to Union Rd
- Glenmore 3 - Union Rd to Scenic Rd
- Gordon 2 - Barnaby/Gordon Intersection to Dehart Rd
- Gordon 3 - Dehart Rd to Old Meadows Rd
- Gordon 5 - Mission Creek to Casorso Rd
- Gordon 5B - Mission Creek Crossing
- Gordon 6 - Casorso Rd to Lanfranco Rd
- Hwy 33 - McKenzie Rd to Gallagher Rd
- Hwy 33 1 - Enterprise Way to Hwy 97 N
- Hwy 97 1 - Gordon Dr to Hwy 33 W
- Hwy-Link-Ellis - Ellis/Hwy 97 Intersection
- Hwy-Link-Pandosy 3 & 3B - Sutherland Ave to Lawrence Ave
- Hwy-Link-Richter - Bernard Ave to Sutherland Ave
- Killdeer Rd - Chute Lake Rd to Frost Rd
- KLO - Gordon Dr to Benvoulin Rd
- Lakeshore 1A - Vintage Terrace Rd to Barnaby Rd
- McCurdy 4 - Craig Rd to Tower Ranch
- Rio 2 - Highlands to Internal Rd C1
- Sexsmith 1 - Ridge Rd to Millard Rd
- South Perimeter 2 - Lebanon Creek to Chute Lake 1
- Springfield 2 - Ziprick Rd to Hollywood Rd S
- Stewart 1 & 2 - South Perimeter Rd to Crawford Rd
- Swamp 1 - Dehart Rd to Casorso Rd
- UBC Flyover - Hwy 97 N/Hollywood Rd N/University Way

Projects no Longer Required

- Beaver Lake Rd - City Limits to East Connector
- Bernard 2 - Richmond St to Burtch Rd
- Burtch 1 - Benvoulin Rd to KLO Rd
- Burtch 5 - Harvey Ave to Kelglen Cr
- Gulley 2 - Spiers Rd to Hart Rd
- Hollywood 2 - Springfield Rd to East Kelowna Rd
- Hollywood 2b - Bridge over Mission Creek
- Hwy 97 2 - Hwy 33 W to Sexsmith Rd
- McCurdy 2b - Mill Creek Crossing
- McCurdy 3 - Hwy 97 N to Hollywood Rd N

- McKinley 1 - Glenmore Rd to Hwy 97 N
- Old Meadows - Lakeshore Rd to Gordon Dr
- Pandosy 2 - Royal Ave to Sutherland Ave
- Sexsmith 4 - Valley Rd to Longhill Rd
- Springfield 1 - Richter St to Ethel St
- Springfield 3 - Hollywood Rd S to Rutland Rd S
- Rutland 1 - Leathead Rd to Cornish Rd

Projects with Reduced Scopes

- Barnaby 1 (Lakeshore Rd to Gordon Dr): Reduced to sidewalk improvements
- COMC 3 (Hwy 33 W to McCurdy Rd): We will acquire land only. No construction cost is allocated to the project.
- Dehart 2 (Lakeshore Rd to Gordon Dr): Only three lanes (two lanes plus middle turning lane) will be constructed instead of four lanes previously planned.
- Ethel 2 (Springfield Rd to Lawson Ave): This road will no longer be widened to four lanes but will be an active transportation corridor.
- Lakeshore Rd (Barnaby Rd to Richter St): This will be constructed as a two lane road with a centre turning lane (wherever necessary) and an active transportation corridor. A 30 meter road right of way will be protected. This road was previously shown as a four lane road.
- McCulloch (Mission Creek Bridge to Hall Rd): Limited to improvements between Mission Creek Bridge & Hall Rd including Spiers Rd realignment to KLO Rd
- McCurdy 1 (COMC 3 to Dilworth Dr): Only road right of way will be protected.

Active Transportation Only Projects - New

- Abbott 1 - Rose Ave to Lakeshore Rd
- Casorso 3 & 4 - Barrera Rd to Ethel St
- Ethel 1, 2, 3 & 4 - Raymer Ave to Clement Ave
- Glenmore 3, 4 & 5 - Clement Ave to E-W Connector
- Hollywood 9, 10, 11 - Mission Creek Greenway to McCurdy Rd
- Houghton 1, 2 & Overpass - Rutland Rd N to COMC 3
- KLO 1 & 2 - Abbott St to Okanagan College
- Lake 1 - Abbott St to Pandosy St
- Leckie 1, 2 & 3 - COMC 2 to Mission Creek Greenway
- Rails with Trails - Spall Rd to Houghton 1
- Sutherland 1 & 2 - Harvey Ave to Pandosy St

Road Projects - New

- E-W Connector 1, 2, 3 & 4 - Glenmore Rd N to Academy Way
- Guisachan 3 - Ethel St to Gordon Dr
- Richter 1 - KLO Rd to Sutherland Ave
- Rose 1 - Pandosy St to Ethel St

Road Projects that include Active Transportation

- Airport - Hollywood Rd N to Hwy 97 N
- E-W Connector 1, 2, 3 & 4 - Glenmore Rd N to Academy Way
- Hollywood 3, 4, Francis Creek Bridge, 5, Mill Creek Bridge, 6, 7 & 8 - McCurdy Rd Quail Ridge Blvd
- Lakeshore 1, Bellevue Creek Bridge, 2, 3, Mission Creek Bridge, Wilson Creek Bridge & 4 - Barnaby Rd to Lanfranco Rd
- Rose 1 - Pandosy St to Ethel St

ANNEX 2: 2030 Road Network Projects

S. No.	DCC Roads	From	To	RoW, m
1	Airport	Hollywood Rd N	Hwy 97 N	30
2	Begbie Rd	Glenmore Highland	Glenmore Rd	20
3	Benvoulin 1	Casorso Rd	KLO Rd	30
4	Burtch 2	Byrns Rd	KLO Rd	25
5	Casorso 1	Swamp Rd	Benvoulin Rd	30
6	Casorso Bridge (Mission	Mission Creek Crossing		30
7	Clement 1	Ellis St	Graham St	30
8	Clifton	Clement Ave	Mountain Ave	30
9	COMC 2	Spall Rd	Hwy 33 W	35
10	COMC 3	Hwy 33 W	McCurdy Rd	35
11	Dehart 2	Lakeshore Rd	Gordon Dr	26
12	E-W Connector 1	Glenmore Rd	Sta 11+340	30
13	E-W Connector 2	Sta 11+340	Sta 11+900	30
14	E-W Connector 3	Sta 11+900	Sta 12+300	30
15	E-W Connector 4	Sta 12+300	Sta 12+750	30
16	Frost 1	Chute Lake Rd	Killdeer Rd	20
17	Gallagher 1	Lago Vista Ave	Gallagher Rd	16-20
18	Gordon 1	Frost Rd	South Perimeter Rd	30
19	Gordon Bridge (Bellevue	Bellevue Creek Crossing		20
20	Gordon 4	Old Meadows Rd	Lequime Rd	30
21	Guisachan 2	Gordon Dr	Nelson Rd	25-28
22	Guisachan 3	Ethel St	Gordon Dr	25
23	Hollywood 3	McCurdy Rd	Stremel Rd	25
24	Hollywood 4	Stremel Rd	Hwy 97 N	25
25	Hollywood Bridge (Francis	Francis Creek Crossing		25
26	Hollywood 5	Hwy 97 N	Railway Track	25
27	Hollywood Bridge (Mill	Mill Creek Crossing		25
28	Hollywood 6	Railway Track	Sexsmith Rd	25
29	Hollywood 7	Sexsmith Rd	Appaloosa Rd	25
30	Hollywood 8	Appaloosa Rd	Quail Ridge Blvd	25
31	Hwy Link-Gordon	Sutherland Ave	Bernard Ave	30
32	Lakeshore 1A	Barnaby Rd	Vintage Terrace Rd	30
33	Lakeshore 1	Vintage Terrace Rd	DeHart Rd	30
34	Lakeshore Bridge (Bellevue	Bellevue Creek Crossing		30
35	Lakeshore 2	Dehart Rd	Old Meadows Rd	30
36	Lakeshore 3	Old Meadows Rd	Richter St	30
37	Lakeshore Bridge (Mission	Mission Creek Crossing		30
38	Lakeshore Bridge (Wilson	Wilson Creek Crossing		30
39	Lakeshore 4	Richter St	Lanfranco Rd	30
40	Lone Pine	Hwy 33 E	Approx. 500 m east	20
41	McCulloch	Mission Creek Crossing	Hall Rd	20-30
42	McCurdy 1 (Land only)	Dilowrth Dr	COMC 3	30
43	Pandosy 1	Raymer Ave	Rose Ave	20
44	Richter 1	KLO Rd	Sutherland Ave	20
45	Ridge	Cara Glen Way	Union Rd	20
46	Rio 1 (Devel)	Clifton Rd	Clear Pond Pl	20
47	Rose 1	Pandosy St	Ethel St	25
48	Rutland 2	Cornish Rd	Old Vernon Rd	30
49	Sexsmith 3	Glenmore Rd	Valley Rd	25
50	Sexsmith 5	Longhill Rd	Rutland Rd N	30
51	South Perimeter 1	Gordon Dr	Stewart Rd W	30
52	Stewart Rd 3	Crawford Rd	Swamp Rd	30

ANNEX 2: 2030 DCC Active Transportation Network Projects

S. No.	DCC Roads	From	To
1	Abbott 1	Rose Ave	Lakeshore Rd
2	Airport	Hollywood Rd N	Hwy 97 N
3	Casorso 3	Barrera Rd	KLO Rd
4	Casorso 4	KLO Rd	Ethel St
5	E-W Connector	Glenmore Rd	Sta 11+340
6	E-W Connector	Sta 11+340	Sta 11+900
7	E-W Connector	Sta 11+900	Sta 12+300
8	E-W Connector	Sta 12+300	Sta 12+750
9	Ethel 1	Lawson Ave	Clement Ave
10	Ethel 2	Springfield Rd	Lawson Ave
11	Ethel 3	Morrison Ave	Springfield Rd
12	Ethel 4	Raymer Ave	Morrison Ave
13	Glenmore 3	Clement Ave	High Rd
14	Glenmore 4	High Rd	Dallas Rd
15	Glenmore 5	Scenic Rd	E-W Connector
16	Hollywood 3	McCurdy Rd	Stremel Rd
17	Hollywood 4	Stremel Rd	Hwy 97 N
18	Hollywood Bridge (Francis Creek)	Francis Creek Crossing	
19	Hollywood 5	Hwy 97 N	Railway Track
20	Hollywood Bridge (Mill Creek)	Mill Creek Crossing	
21	Hollywood 6	Railway Track	Sexsmith Rd
22	Hollywood 7	Sexsmith Rd	Appaloosa Rd
23	Hollywood 8	Appaloosa Rd	Quail Ridge Blvd
24	Hollywood 9	Hollydell Rd	Hwy 33
25	Hollywood 10	Hwy 33	McCurdy Rd
26	Hollywood 11	Mission Creek Greenway	Springfield Rd
27	Houghton 1	Nickel Rd	COMC 3
28	Houghton Overpass	Overpass at Hwy 97 N	
29	Houghton 2	Hollywood Rd N	Rutland Rd N
30	KLO 1	Abbott St	Pandosy St
31	KLO 2	Pandosy St	UBCO College
32	Lake 1	Abbott St	Pandosy St
33	Lakeshore 1	Vintage Terrace Rd	DeHart Rd
34	Lakeshore Bridge (Bellevue Creek)	Bellevue Creek Crossing	
35	Lakeshore 2	Dehart Rd	Old Meadows Rd
36	Lakeshore 3	Old Meadows Rd	Cook Rd
37	Lakeshore Bridge (Mission Creek)	Mission Creek Crossing	
38	Lakeshore Bridge (Wilson Creek)	Wilson Creek Crossing	
39	Lakeshore 4	Richter St	Lanfranco Rd
40	Leckie 1	COMC 2	Dilworth Dr
41	Leckie 2	Dilworth Dr	Enterprise Way
42	Leckie 3	Enterprise Way	Springfield Rd
43	Rails with Trails (RwT)	Spall Rd	Houghton 1
44	Rose 1	Pandosy St	Ethel St
45	Sutherland 1	Harvey Ave	Gordon Dr
46	Sutherland 2	Gordon Dr	Pandosy St

ANNEX 3: The Benefits of Transit

from "Status of the Nation's Highways, Bridges, and Transit: 2004 Conditions and Performance," Chapter 14: The Importance of Transit: US Department of Transportation, Federal Highway Administration (<http://www.fhwa.dot.gov/policy/2004cpr/chap14.htm>)

Transit provides benefits for people who choose to ride it, as well as for people who do not. Those who ride transit because they have no alternative means to travel reap the rewards of enhanced mobility, including access to jobs, education, health services, community activities, and friends and family. Those who choose to ride transit despite access to private transportation alternatives do so for a variety of reasons, including faster travel times, safer travel conditions, reduced stress, and even the ability to engage in activities such as reading while commuting. When transit serves a community well, even those who do not ride it enjoy the benefits of reduced traffic congestion, improved air quality, energy conservation, and a healthier local economy.

Mobility

Many people who ride transit do not have access to a private automobile. Many are unable to afford a car; but others, particularly in transit-intensive cities like New York, may choose not to own a car simply because convenient, reliable transit is available. Still others may be unable to drive due to physical disabilities or age-related conditions.

In 2000, there were more than 30 million older adults in America, and that number is expected to double by 2030; almost 54 million people were reported to have disabilities; and more than 34 million people have household incomes that are below the poverty line. For many of these individuals, transit is their sole means to access employment and community services and to conduct the basic business of everyday life, whether that is traveling to the grocery store, the dry cleaner, a family member's home, or the dentist office.

Since the passage of the Americans with Disabilities Act (ADA) in 1990, transit has played an expanding role in providing basic mobility to people with disabilities. The ADA required that all fixed-route transit services and facilities be made accessible to people with disabilities. Complementary paratransit services must be provided to individuals whose disabilities prevent them from using fixed-route services. Today, over 90 percent of America's public transit buses are accessible, and every new bus or transit system must be accessible. Further, 86 percent of the 685 rail stations that have been designated as "Key Stations" are ADA-compliant or, in the case of 44 stations, are operating under a voluntary compliance agreement.

Most fixed-route transit and paratransit is funded by a combination of Federal Department of Transportation programs, State and local tax revenue, fare-box revenue, and other transit-related earned income. However, there are 62 programs in 10 Federal departments that fund transportation services for individuals who have low incomes, persons with disabilities, or older adults. Generally, these human service transportation programs restrict their transportation service to a specific destination (such as medical care or a particular human service center), a limited timeframe, and the eligible clients of the human service agency. Often, service routes overlap; but lack of coordination among providers, as well as rules that restrict services and eligibility, prevents agencies from sharing these important transportation resources across programs.

On February 24, 2004, President Bush issued Executive Order 13330 on Human Service Transportation Coordination, which required 11 Federal agencies to work together to simplify access to transportation services, identify useful practices to enhance coordination and improve services, eliminate duplication and overlap among Federally funded programs, and improve the coordination of Federally supported transportation services at all levels. Through the Federal Coordinating Council on Access and Mobility, chaired by Secretary of Transportation Norman Y. Mineta, these Federal agencies have pursued education and outreach strategies, identified key regulatory barriers to coordination, created programs and tools to enhance coordinated transportation planning at the community level, tackled the challenging issue of how

to allocate costs among programs that share transportation services, and developed a Web site that provides universal access to useful practices for improving the coordination of transportation services.

Location Efficiency and Economic Growth

Investment in transit generates real and substantial economic returns. It sets off an economic chain reaction that generates business activity, creates jobs, boosts property values and tax earnings, and improves productivity. Not surprisingly, more and more communities, developers, and financial investors are recognizing the appeal of transit-oriented development. Commercial activities such as retail, restaurants, theaters, and legal and financial services thrive on the concentration of large numbers of people and businesses in close geographic proximity. Households recognize the advantages of reduced transportation costs and the convenience of walking, biking, or taking transit to employment, entertainment, and businesses.

The American Association of Retired Persons reports that fully 71 percent of older Americans—the Nation's fastest-growing population group—want to live within walking distance of transit. The composition of American households is also changing. The traditional nuclear families that made up 40 percent of households in 1970 now comprise less than 25 percent of households. In just one generation, the "typical" American household won't have children living in it. In fact, nearly 70 percent of households will not include children; they will consist of singles, empty nesters, and couples without children. These are groups with a proven preference for a "mixed use" living environment that combines interesting housing options with the amenities of the city.

The Center for Transit Oriented Development recently released a national market assessment of demand for housing near transit in the next two decades. Even using a very conservative methodology, it reached what the authors call a "staggering" conclusion. They project that, over the next 20 years, at least a quarter of all American households are likely to seek housing near transit. There is, in fact, the potential to *more than double* the amount of housing in transit zones in the next 20 years.

The Surface Transportation Policy Project has found that the cost of *car* ownership can put the American dream of *home* ownership out of reach for families with lower incomes. According to a July 2003 STPP report, American households spent 19 cents of every household dollar on transportation expenses in 2001—and lower-income households are forced to spend an even higher percentage on transportation. In fact, transportation is the second largest household expense, after housing, and is three times the cost of health care. It amounts to, on average, over \$7,600 dollars each year, just to get around; and saving for a home becomes that much more difficult.

Congestion Management

Traffic congestion impacts the movement of goods and the movement of people—at a significant cost to the American economy. Travel time generally costs freight carriers between \$144 and \$192 dollars an hour, but an unscheduled delay nearly doubles those costs, to \$371 an hour. At the same time, businesses that depend upon freight movement to support just-in-time delivery systems must increase inventories—and, therefore, costs. In fact, because of congestion, a 10 percent increase in vehicle miles traveled over the existing road system produces a \$1 billion increase in annual logistics costs.

The efficient movement of people on our highways is also critical to the economy. Today, 91 percent of all person miles traveled are on highways. The U.S. population grew more than 20 percent in the last 18 years, highway travel increased 80 percent, and the number of drivers increased by 30 percent—but miles of highways increased only 2 percent. Not surprisingly, drivers are spending more and more time stuck in traffic. The 2002 Texas Transportation Institute (TTI) study of 75 urban areas found that congestion is growing in cities of every size, and the average rush hour driver spends 62 hours a year stuck in traffic, up from just 16 hours a year in 1982. According to the study, the total congestion "bill" for the 75 areas came to \$67.5 billion in 2000, which was the value of 3.6 billion hours of delay and 5.7 billion gallons of excess fuel consumed.

To improve the mobility of people and the movement of freight requires a multimodal transportation investment. Investments in public transportation that give people the choice to move from single-occupant cars onto transit, coupled with investments in our highway infrastructure that speed the movement of freight as well as cars, represent an opportunity to recapture the lost productivity, wasted fuel, and unnecessary air pollution caused by traffic congestion.

For every \$1 million in transit investment, over \$1.5 million can be saved. A \$10 million investment in transit generates an increase of \$2 million in business output and \$0.8 million in personal income in the first year; over 20 years, these benefits increase to \$31 million in business output and \$18 million in personal income.

Some argue that, because roads "fill up" soon after new transit is added or roads are widened, these investments are a waste of money. But this argument ignores the role of mobility in facilitating economic transactions. While capacity expansion in dense areas may not permanently eliminate congestion, it can still bring significant economic benefit by accommodating more activity.

Saving Energy and Protecting the Environment

With greater fuel efficiency and lower emissions per passenger mile, transit is uniquely positioned to help America save energy and protect the environment without imposing new taxes, government mandates, or regulations on businesses or consumers. Currently, public transportation saves America more than 855 million gallons of gasoline each year—or 45 million barrels of oil, the equivalent of about three months of energy used to heat, cool, and operate American homes. And current public transit use helps avoid the release of nearly 745,000 tons of carbon monoxide (CO)—roughly 75 percent of the CO emissions from all U.S. chemical companies. It also avoids the release of more than 7.4 million tons of carbon dioxide each year.

Saving Lives and Responding to Emergencies

Public transportation continues to be one of the safest modes of travel. Riding a transit bus is 91 times safer than car travel, and rail passengers are 15 times safer. Investments that induce more people to choose transit will save lives and save money. Although transit is a potential target of terrorism, it is also a solution for communities during emergencies. Transit serves as an important means for evacuation from affected areas. It is used to transport emergency workers to and from an emergency site; and transit buses are often used as temporary shelters for victims and workers, and even as emergency medical triage facilities. Investments in public transportation help American communities prepare to effectively respond to terrorist acts, as well as other disasters and emergencies.

ANNEX 4: 2030 OCP Survey Data

September 2008 OCP Survey:
Designate transportation corridors in each part of the City that will retain a pedestrian/cyclist focus regardless of increased vehicular needs
 83% support
 11% do not support
 6% support with refinements

If you had \$100 to spend on transportation related improvements, how would you allocate your money?
 16% sidewalks
 17% bike lanes on the road
 26% pedestrian paths/cyclist lanes
 25% better/more transit
 16% new/widened roads

Tradeoffs
 24% Keep on street parking on an arterial road
 76% Add a bike lane
 19% Decrease driving time by 3 to 5 minutes
 81% Increase safety for cyclists/pedestrians
 48% Decrease driving time by 3 to 5 minutes
 52% Increase speed for transit buses
 50% Increase taxes to pay for new roads
 50% No new roads / don't widen existing roads

June 2008 OCP Survey

How should priorities be set when the needs of pedestrians and vehicles

conflict? (respondents could indicate more than one selection)

35% priority to cars along Highway 97 and Highway 33
 30% priority to pedestrians in Urban Centres
 21% priority to pedestrians throughout the city
 7% priority to cars throughout the city
 7% priority to other

If you typically travel alone by car, would you consider another form of transportation?

50% no
 37% yes
 12% no answer

How far is your principal destination from your home?

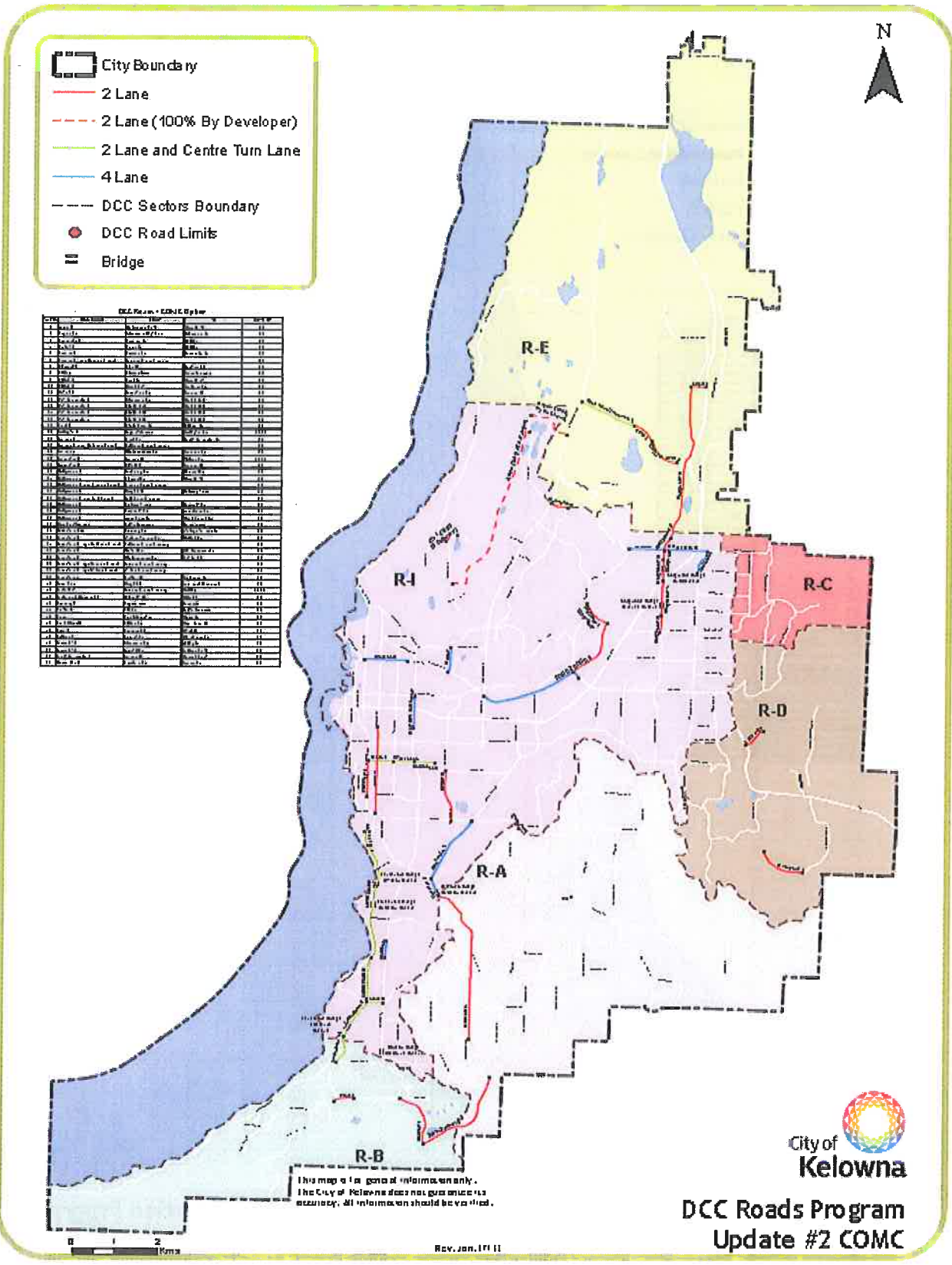
41% 1 to 5 km
 32% 6 to 10 km
 16% 11 to 15 km
 6% more than 15 km
 5% less than 1 km

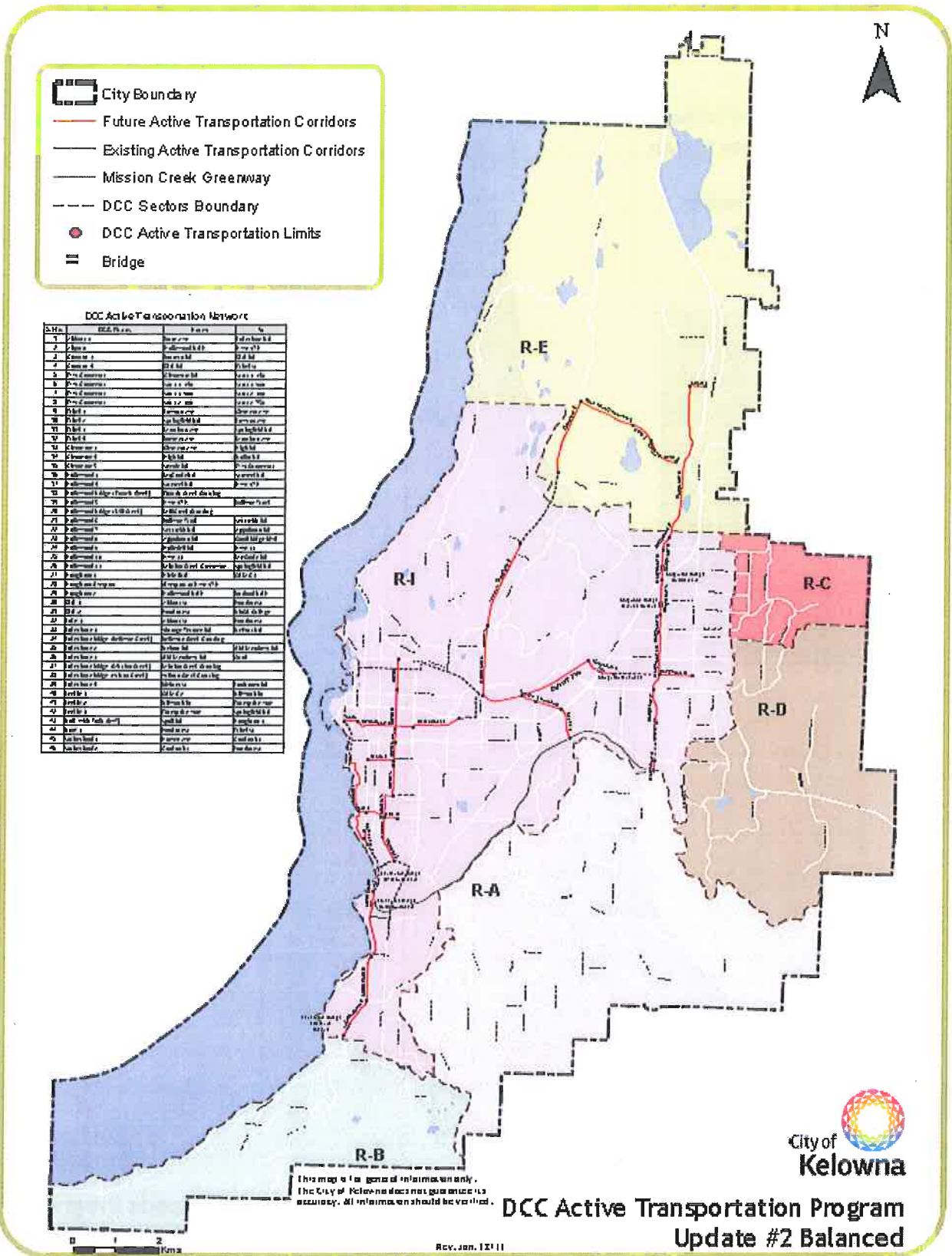
Do you think that the way transportation infrastructure has been provided within the past 10 years is sustainable?

64% no
 36% yes

Do you think that the City should do more to ensure that future transportation infrastructure is sustainable?

95% yes
 5% no





2030 PLAN								
2030 Major Services - Funding Sources (\$ Millions)								
Major Service	Pro v. Grant	Developer Contribution	DCC's/Reserve	Taxation	Utility User Rate	2020 Total	2030 Total	% Change from 2020
Arterial Roads	23.8	52.3	190.8	126.3		393.2	331.5	-15.5%
Water Distribution		5.4	23.0		30.7	59.1	43.7	-26.2%
Wastewater Trunk		4.9	23.6		9.4	37.9	49.9	31.7%
Wastewater Treatment			66.6		19.6	86.2	82.0	-4.8%
Parkland Acquisition	5.4		107.1	13.0		125.5	144.7	15.3%
2020 Total	29.2	62.6	411.1	139.3	59.7	701.9	915.8	30.1%
2030 Total	49.2	99.0	577.5	154.9	41.5	915.8		
% Change from 2020	68.8%	158.1%	40.8%	11.0%	69.5%	13.0%		

ROADS (Res 1)

	A S. E. Kalamazoo	B South Mission	C NE of Inner City	D North of Hwy 88	E North of Inner City	F South of Hwy 88	G Inner City
2020 program							
Sector	16,353	14,568	5,390	7,756	5,027	4,502	9,176
Common	9,176	9,176	9,176	9,176	9,176	9,176	9,176
Total Roads	25,529	23,743	14,505	16,932	14,203	13,678	9,176
2030 Program							
Sector	1,265	15,897	6,776	3,542	4,390	combined w/D	7,461
Common	7,461	7,461	7,461	7,461	7,461		7,461
Total Roads	8,726	23,358	14,236	11,002	12,051		7,461
% change vs Feb/09	(65.8)	(1.6)	(1.9)	(55.0)	(15.1)		(18.7)

PARKS

2020 Program	5,069
2030 Program	5,300
% change	4.6

TREATMENT

2020 Program	3,044
2030 Program	3,722
% change	22.3

TRUNKS

	North Mission	S. Mission
2020 Program	1,562	1,979
2030 Program	1,294	1,903
% change	(17.2)	(3.8)

WATER

	A	B	D
2020 Program	1,757	1,289	3,054
2030 Program	998	679	3,552
% change	(43.2)	(47.3)	16.3

ALL PROGRAMS

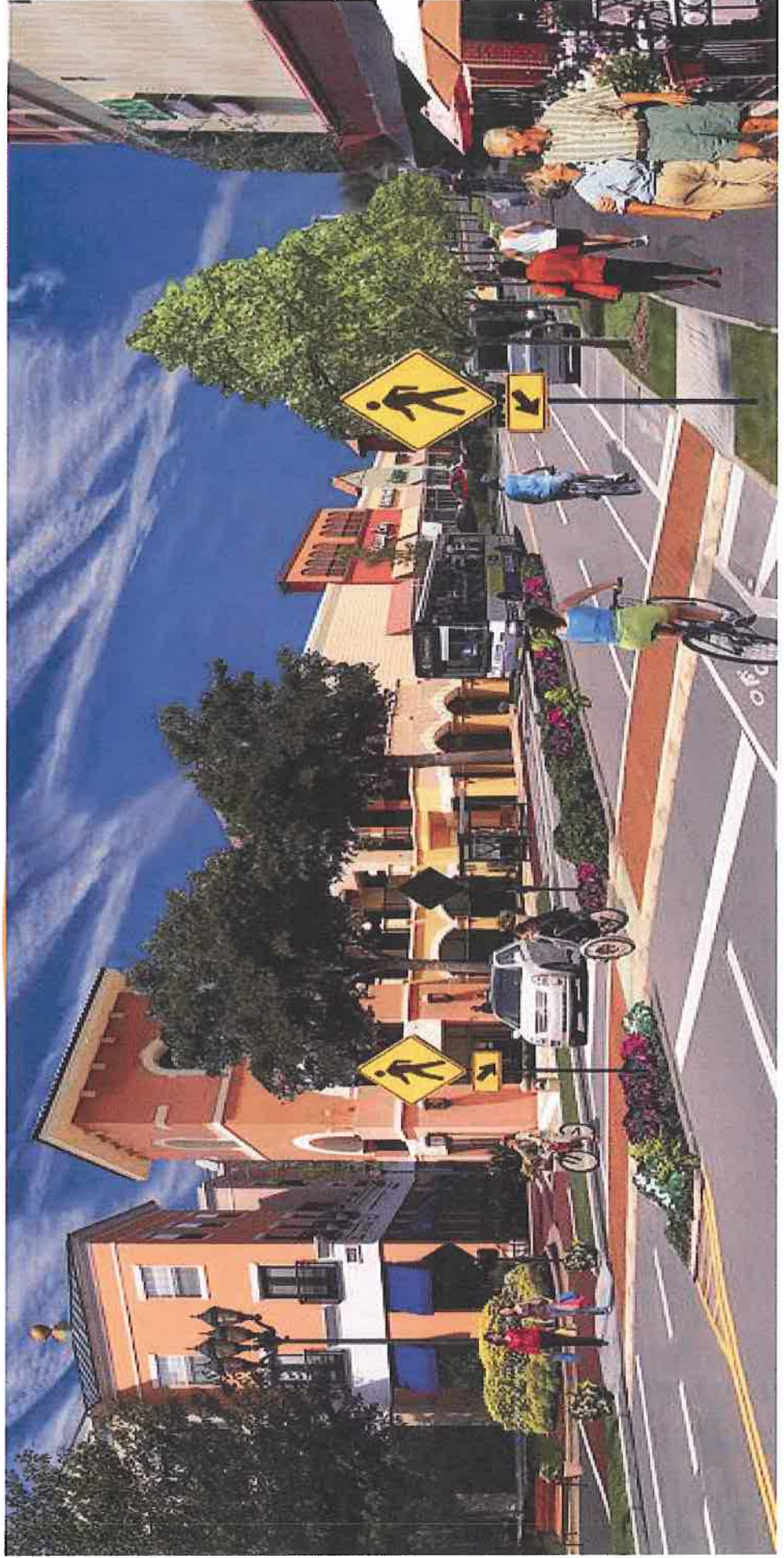
sectors	SE. Kalamazoo	SW. Mission	NE. Grand	Hwy 88	Unsubsidized	City Center
2020 Program	30,598	35,124	24,180	26,607	23,878	20,608
2030 Program	14,026	34,963	24,552	21,318	22,367	18,774
\$ Difference	(16,572)	(162)	372	(5,289)	(1,511)	(1,833)
% change	(54.2)	(0.5)	1.5	(19.9)	(6.3)	(8.9)

2030 20-YEAR SERVICING PLAN & FINANCIAL STRATEGY: TRANSPORTATION



City of
Kelowna

Council Workshop: 2011 January 24



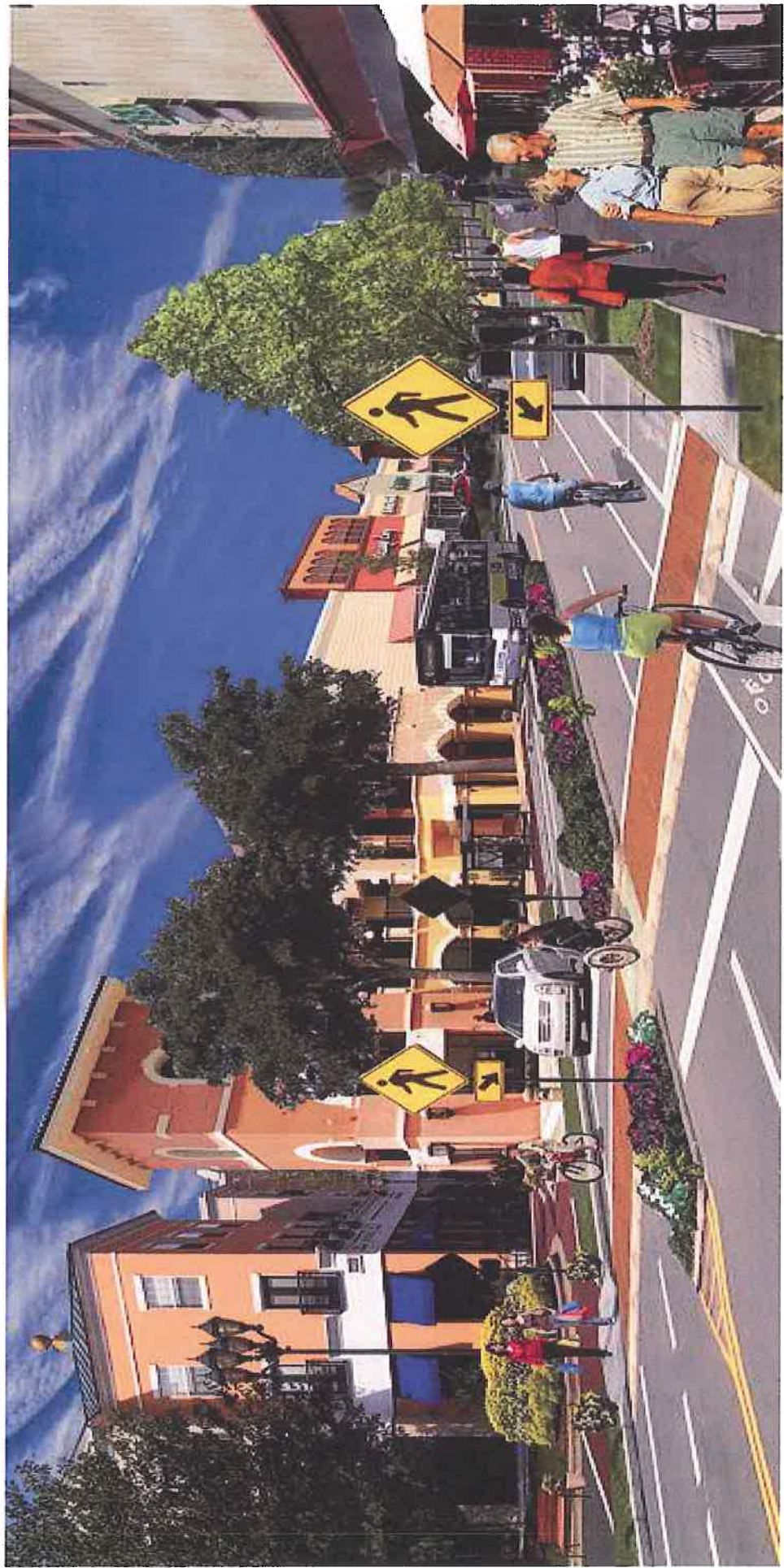
AGENDA

- ▶ Goals & Challenges
- ▶ Strategies
- ▶ Planning Principles
- ▶ Network Solutions
- ▶ Program Costs & DCC Rates
- ▶ Next Steps & Recommendations

GOALS & CHALLENGES



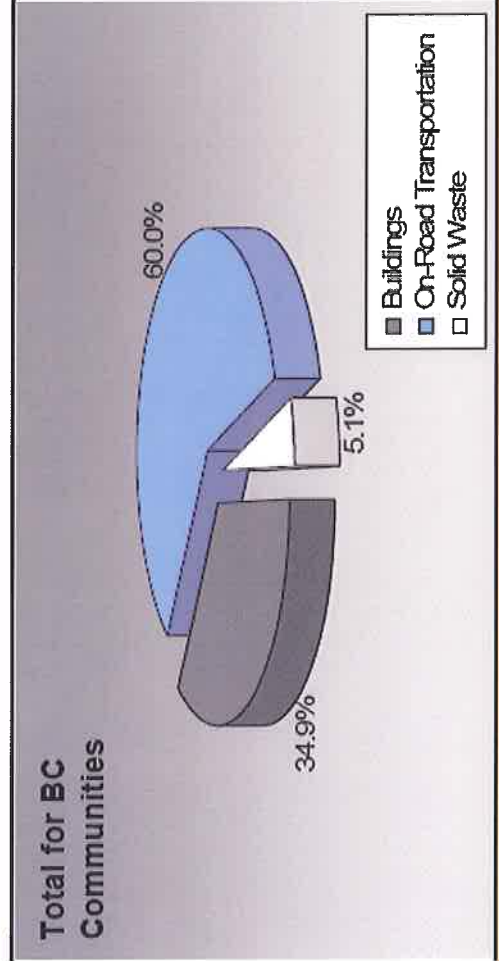
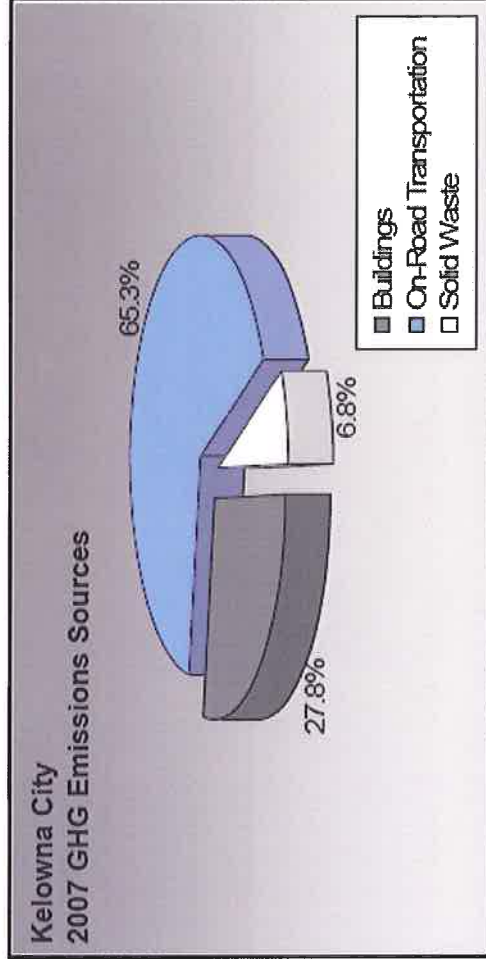
Council Workshop: 2011 January 24



WHERE ARE WE GOING?

	OCP OBJECTIVE	OCP POLICIES
7.5	Emphasize sustainable transportation in balanced network	Sustainable transportation priority, Complete Streets, Road Safety, Rail corridor protection
7.6	Reduce SOV trips	45% SOV in urban centre, Convenient sustainable transportation, Congestion equilibrium
7.7	Improve active transportation	Sidewalks connectivity, Active Transportation corridors, Mid-Block Linkages, Walk-ability, Signals for all modes, Pathways, Bike Parking, Utility ROWs
7.8	Improve transit	Transit priority, Expansion/Service/Frequency priority in urban centre
7.9	Roads support sustainability	MBL planning & design, traffic calming
7.10	TDM thru parking management	Parking cost, cash-in-lieu pricing = full cost accounting

CHALLENGE: KELOWNA'S GHG EMISSIONS



Source: "Updated 2007 Community Energy and Emissions Inventory (CEEI) Report", available through the BC Climate Action Toolkit; www.toolkit.bc.ca

INTERNATIONAL CITY TRAVEL CHARACTERISTICS AND IMPLICATIONS

Prime Mode	Land Use	Density/ha	1-hour Diameter	Per capita fuel consumption	Transport Cost (% RDP)	Ecological Footprint/capita
Walking	Mixed	100-200	5-8 km	<100 L	5%	1.9 ha
Transit	Transitional	100	20-30 km	300-500 L	8%	4.4 ha
Auto	Segregated	10-20	50 km	1000-3000 L	12-17%	6.2+ ha

(Newman and Jennings. 2008. *Cities as Sustainable Ecosystems: Principles and Practices*)

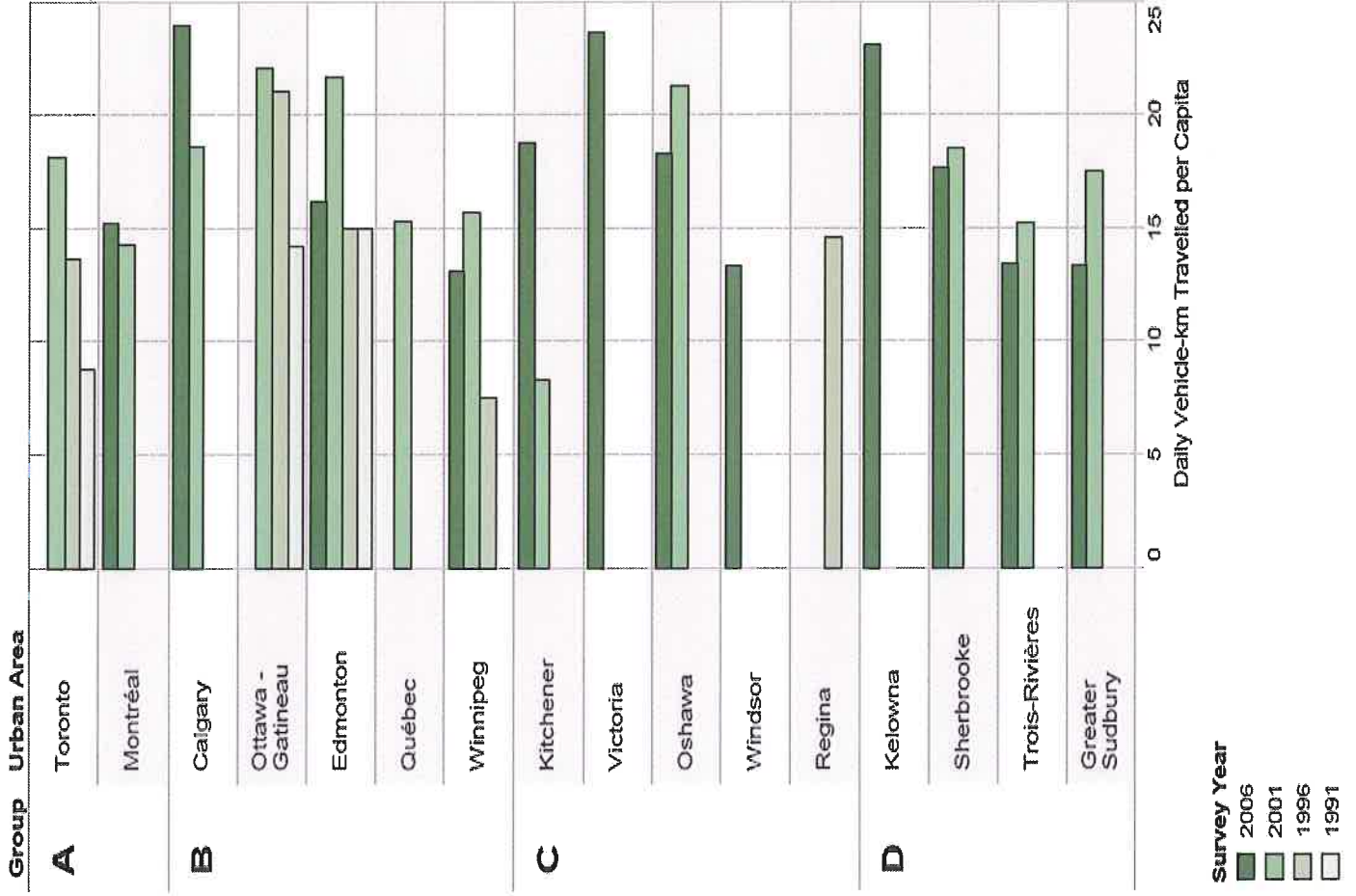
Personal Obesity correlated to high km/person/day traveled and low residential density.
 (Lawrence Frank, Martin Andresen, Thomas Schmid, "Obesity Relationships with Community Design, Physical Activity and Time Spent in Car," American Journal of Preventive Medicine 27, August 2004: 87-96).

CHALLENGE: LAND-USE DENSITY AND CAR DEPENDENCE

	Toronto: Core	Core Ring	Inner Suburbs	Outer Suburbs	Kelowna
Residential Density (persons/km ²)	7,340	5,830	2,810	1,830	2,418
Vehicles owned per household	1.1	1.2	1.6	1.8	1.9
Km/person/day. Distance = time = money	7.5	10.2	15	25.6	23

(Ken Ogilvie, *Air, Soil and Water Quality*, 2003, Toronto based on CMHC data, 2007; CORD Household Travel Survey Data; and Urban Transportation Indicators-Transportation Association of Canada)

DAILY VEHICLE-KILOMETRES TRAVELLED PER CAPITA, 1991-2006



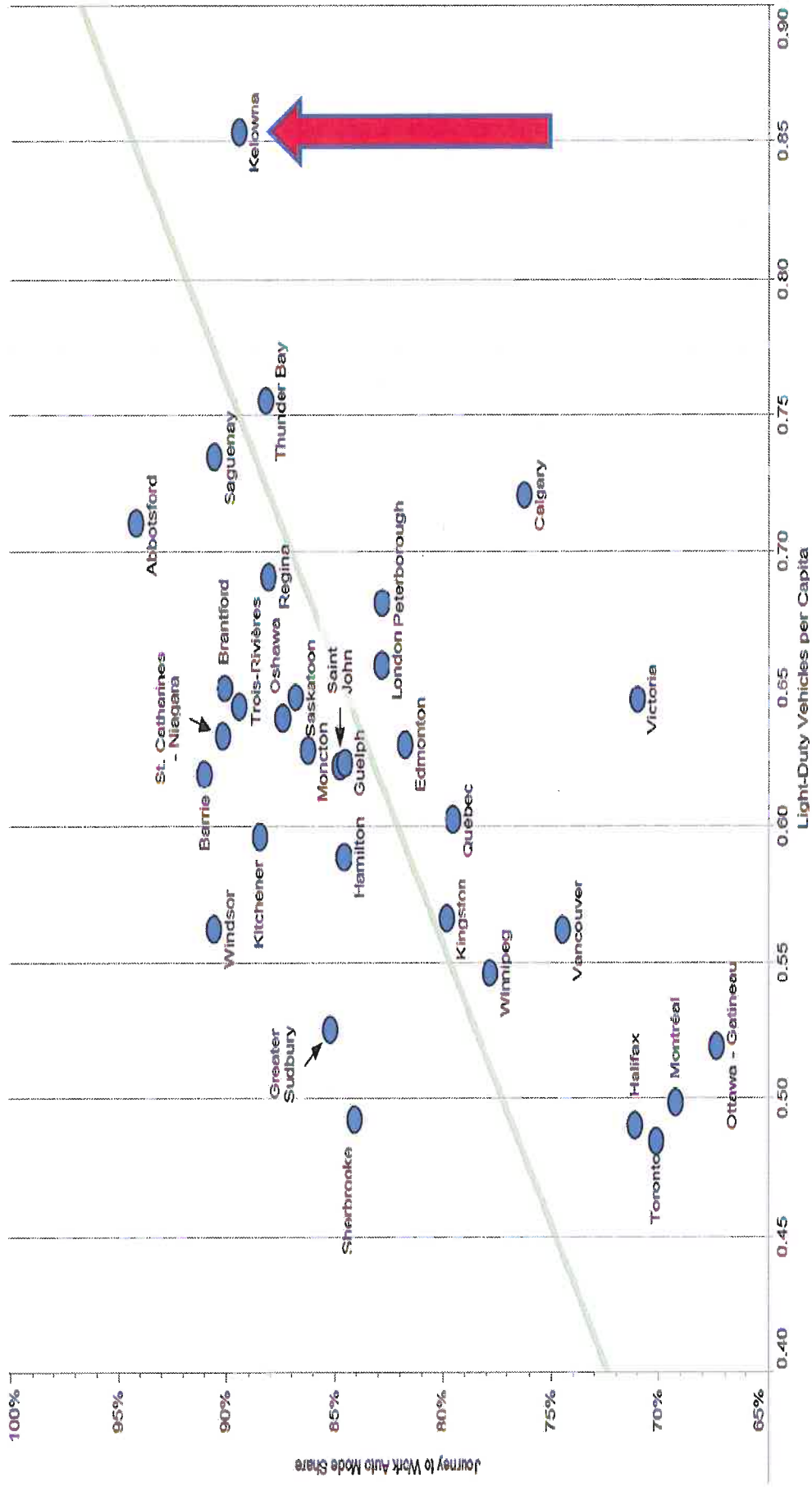
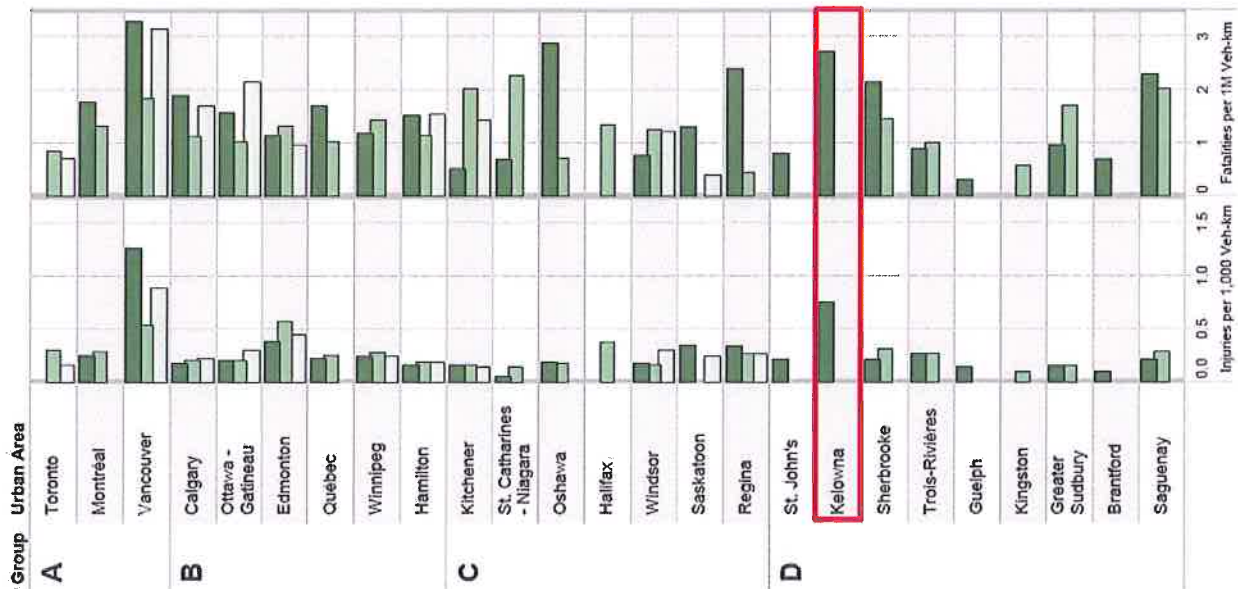


Exhibit 8.4: Trend in Light-Duty Vehicles per Capita and Journey-to-Work Auto Mode Shares, 2006 ⁴²

Source: Statistics Canada

CHALLENGE: KELOWNA'S CAR DEPENDENCY

CHALLENGE: KELOWNA ACCIDENTS

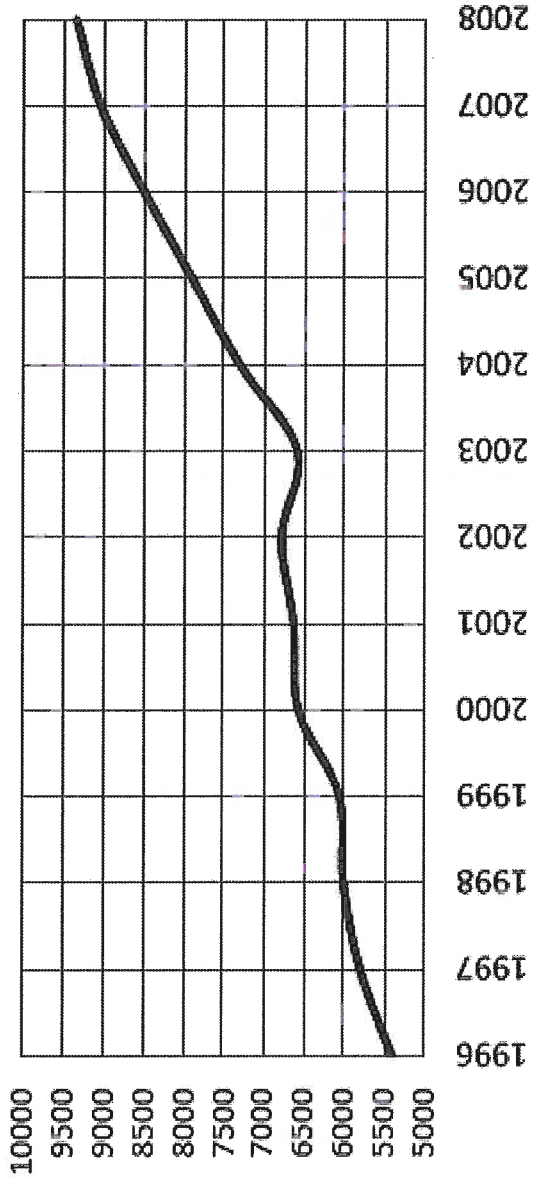


Injuries Fatalities

Survey Year
 ■ 2000
 ■ 2001
 □ 1996

Exhibit 5.10: EUA Injuries and Fatalities per Veh-km, 1996-2006 ²³

All Incidents (1996-2008)



ICBC pays \$68M/year for accident claims in Kelowna

MORE CHALLENGES TO TRANSPORTATION

- ▶ Emerging Issues:
 - ▶ Increasing fuel costs (climate change, peak oil)
 - ▶ Personal and environmental health of increased driving
 - ▶ Economic uncertainty & big expenditure (vehicle) caution
 - ▶ Compact, livable, creative cities
- ▶ Economic drain of car dependency
 - ▶ Personal income and Business costs of congestion
 - ▶ Infrastructure cost (DCC) vs. O&M (taxation)
- ▶ Transit Use Choice Factors: 1-time, 2-money
- ▶ Initial Network Conditions:
 - ▶ Hub & Spoke vs. Grid
 - ▶ Peripheral low density subdivisions on hillsides
 - ▶ Leap frog development (ALR and steep slopes)
 - ▶ Underinvestment in side-walks
- ▶ Higher land costs in urbanized areas

CHALLENGE: DEVELOPMENT FORECAST

Residential Unit comparison for 2020 & 2030 OCP

OCP	RES UNIT GROWTH	% CHANGE
2020	22,458	N/A
2030	16,466	-26.7%

Residential Units by 2030 Transportation Sector

SECTOR	A: SE Kelowna	B: South Mission	C: North East of 'I'	D: N. Hwy #33	E. North of 'I'	I: Inner City ('I')
Units	37	2,117	690	1,657	2,144	9,823
% of Total	0.2%	12.9%	4.2%	10.0%	13.0%	59.7%

Growth triggers build out solutions in fixed increments BUT burden may be shouldered by fewer units. Suburban growth needs infrastructure support equally in South Mission, Black Mtn/Tower Ranch and Glenmore/UBCO.

TRANSPORTATION TO WORK

Means	Canada	United States	Kelowna PM	Kelowna Total
Car	80.6%	90.8%	87.7	87.3
Transit	10.4%	4.7%	4.2	3.7
Bike	1.21%	0.4%	2.4	2.1
Walk	6.5%	3.0%	3.8	4.9

(Jack Jedwab, Getting to Work in North America's Major Cities and Dependence on Cars, Montreal, Association for Canadian Studies, 2004), and (Kelowna Travel Survey, 2007)

The "Best":

Bike to Work: NA: Ottawa 2.9%; followed by Vancouver, Calgary, Montreal, Toronto, Edmonton, San Francisco; EU: Amsterdam 46%, Copenhagen 60%

Walk to work: NA: Montreal 7.9%; followed by New York & Ottawa 6.7%; EU: Barcelona 16%, Oviedo-Spain 48%

CHALLENGE: ELIGIBLE DCC COMPONENTS

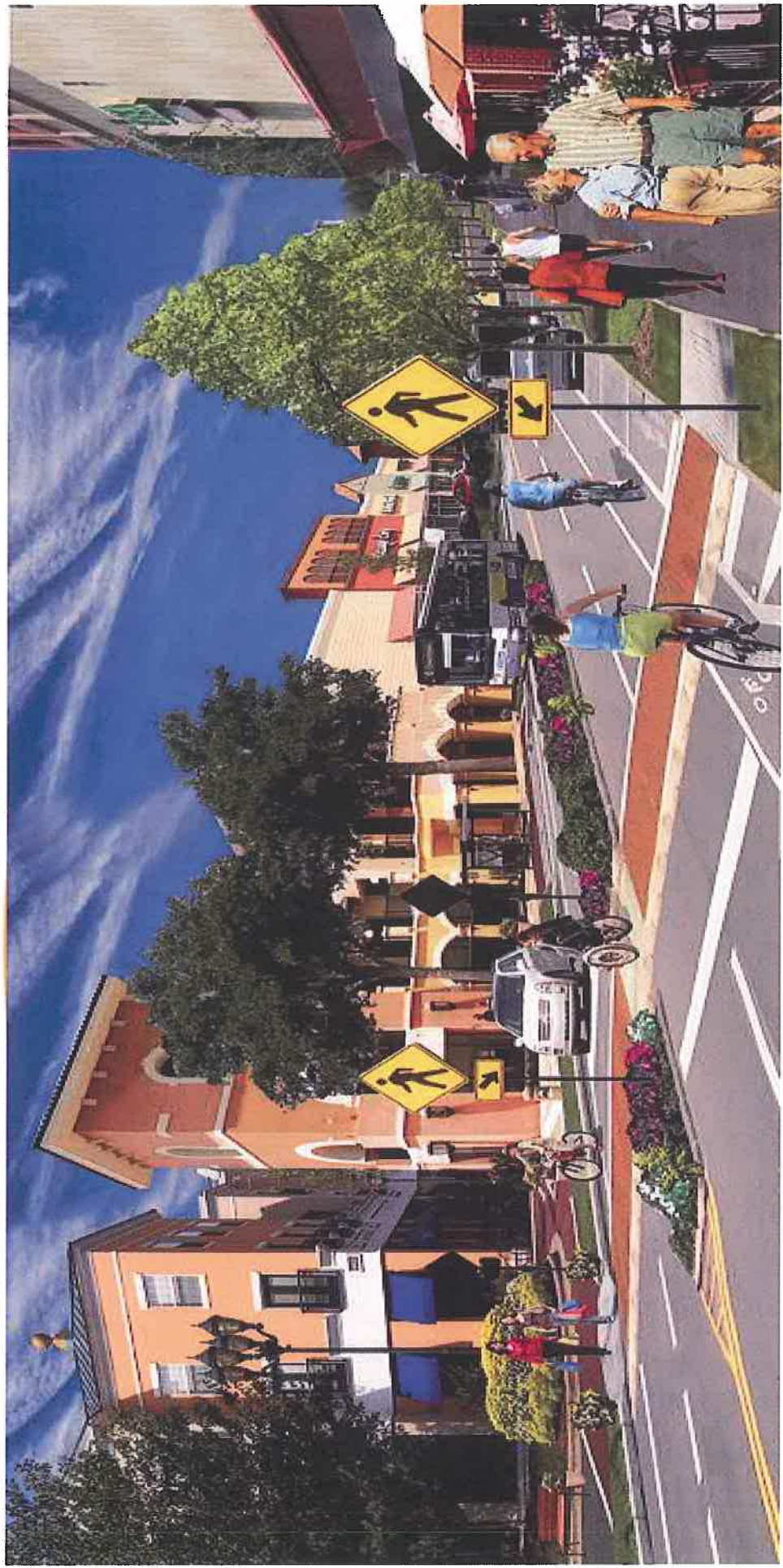
- ▶ Master Transportation Planning
- ▶ Arterial & Collector Roads
- ▶ Sidewalk & Pedestrian facilities
- ▶ Traffic signals & controls
- ▶ **Boulevards & landscaping/irrigation**
- ▶ Noise attenuation
- ▶ **Medians**
- ▶ Curb & gutter
- ▶ Street lighting
- ▶ Underground wiring
- ▶ Pedestrian-highway bridges
- ▶ Intersection channelization
- ▶ Transit-bus pull outs
- ▶ **Bicycle/pedestrian infrastructure**

DCC investment needed for success of full transportation system, not just cars.

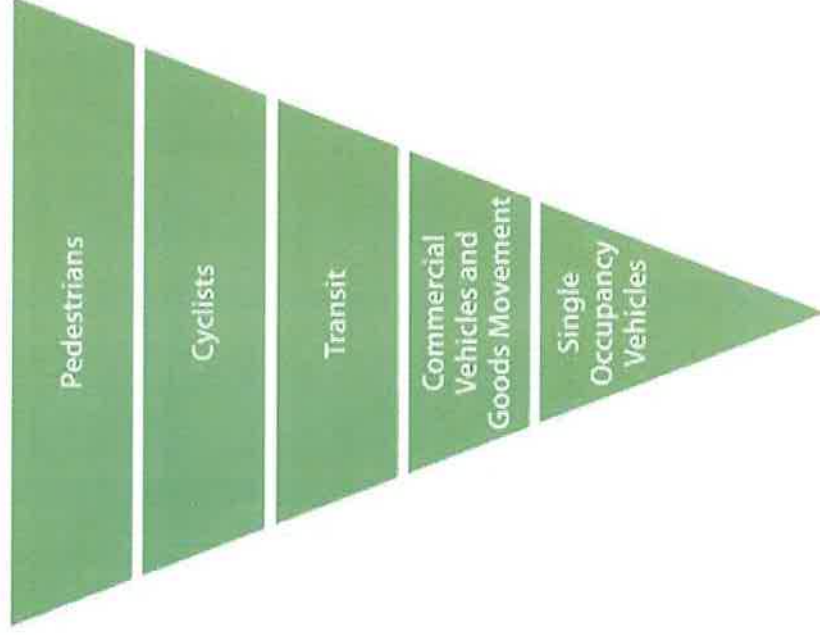
STRATEGIES



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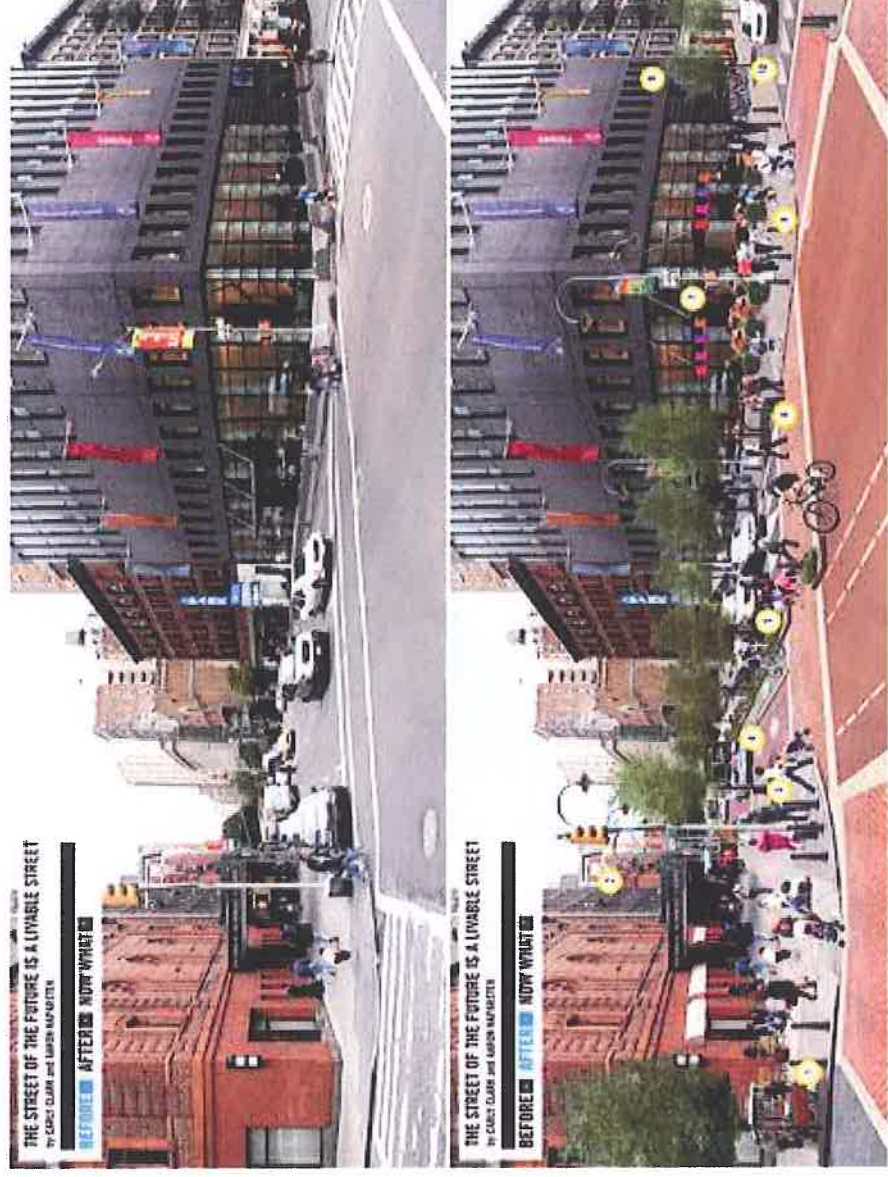
STRATEGY 1



1. Strengthen alternative transport infrastructure (walk, bike, transit)
 1. reduce congestion for commercial traffic (recognize high benefit to existing residents in DCC structure);
 2. harmonize cost and time parameters; support mobility choices for the public benefit

STRATEGY 2

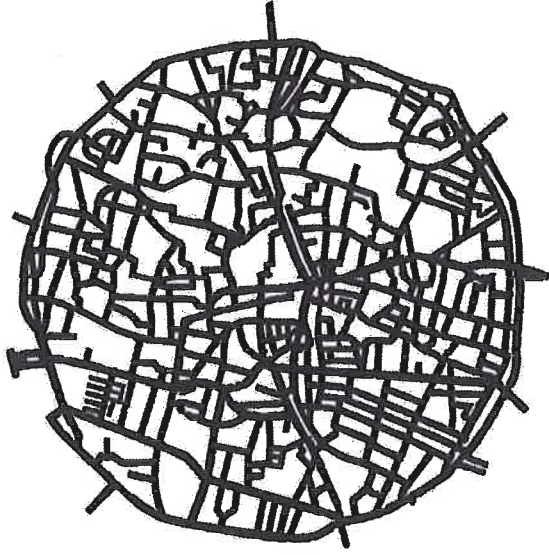
Strengthen articulation of each system to support functional differences



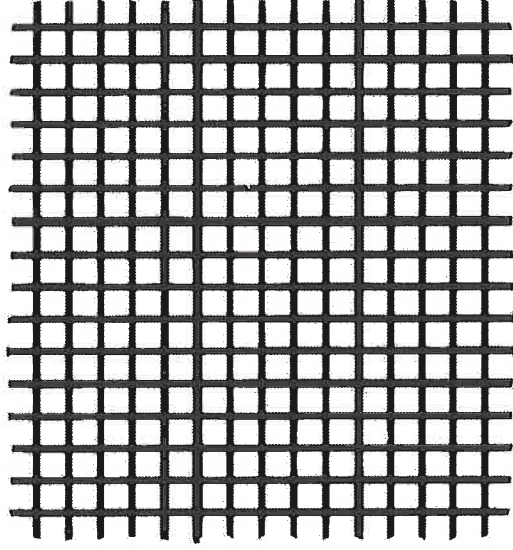
STRATEGY 3

Strengthen network grids to increase capacity instead of increasing capacity of existing arterials; create more choice for self-organizing system

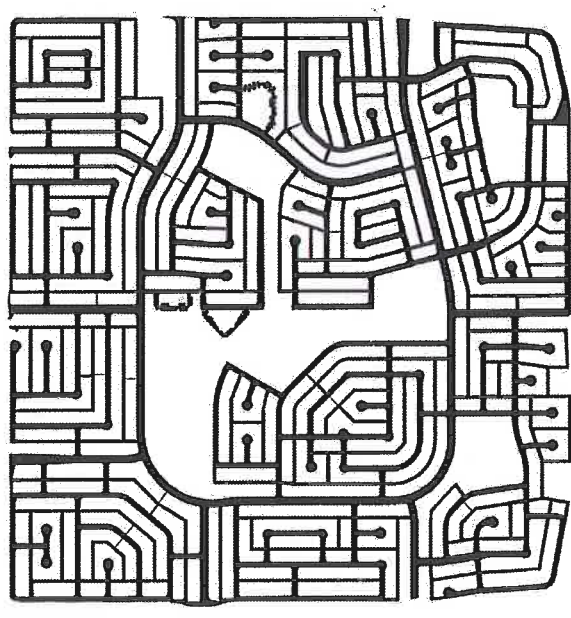
NICOSIA - 1100S



PORTLAND -1800S

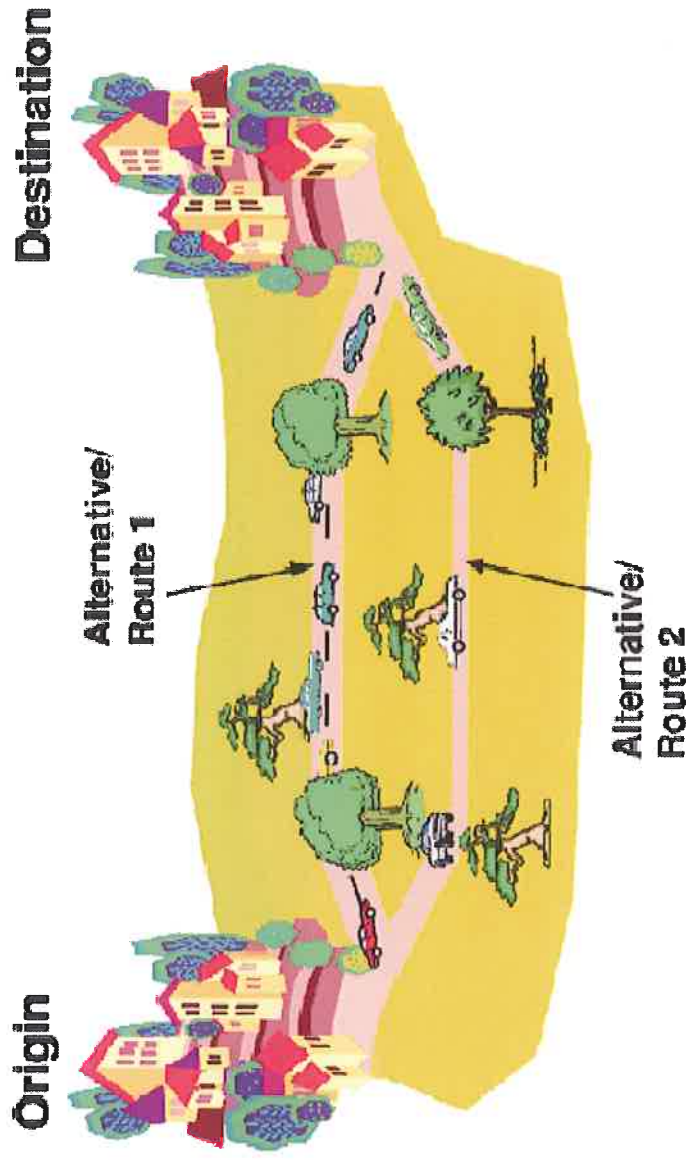


CALGARY - 1980s



STRATEGY 4

Redistribute traffic to optimize use of existing infrastructure in space, time and mode



STRATEGY 5

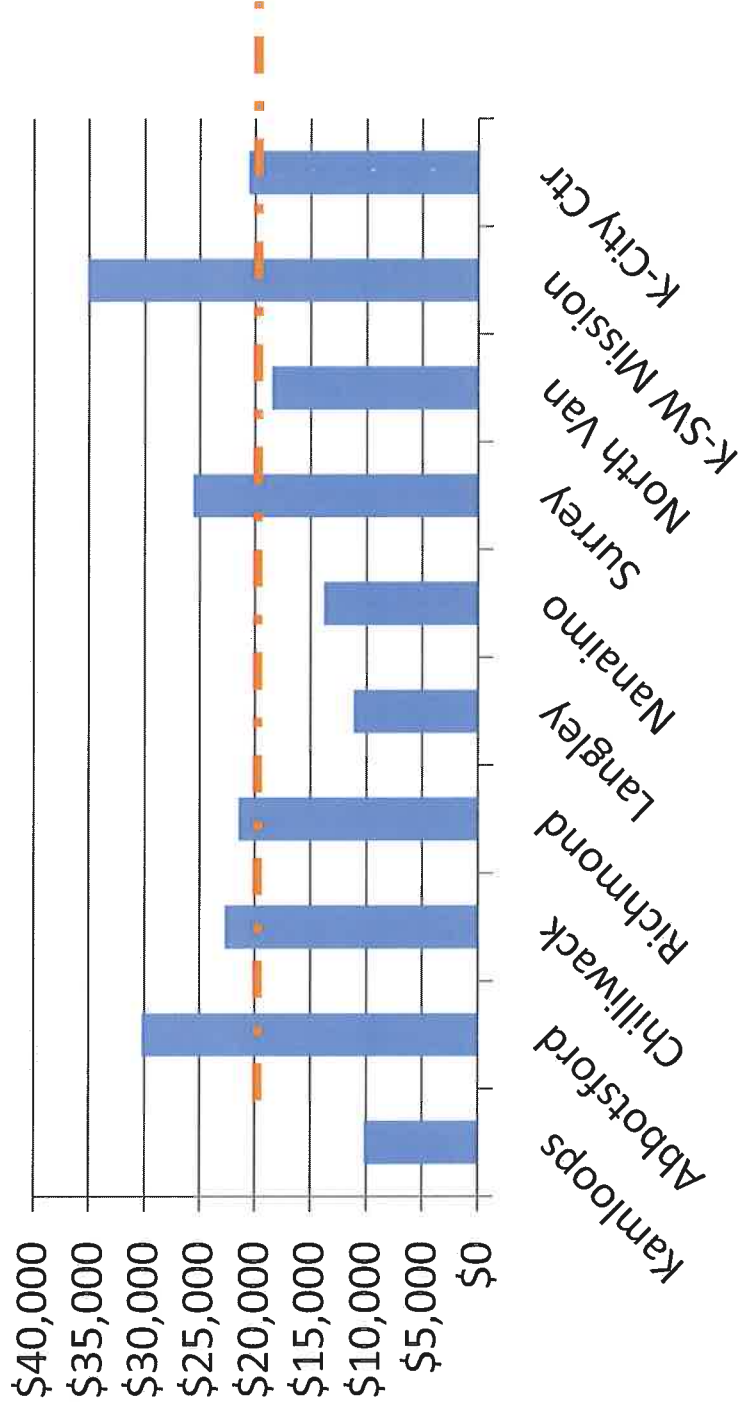
Bypass mid-town commercial to UBCO and Airport using new E-W connector from Glenmore to UBCO



TRANSPORTATION STRATEGY 6

Work within existing DCC funding

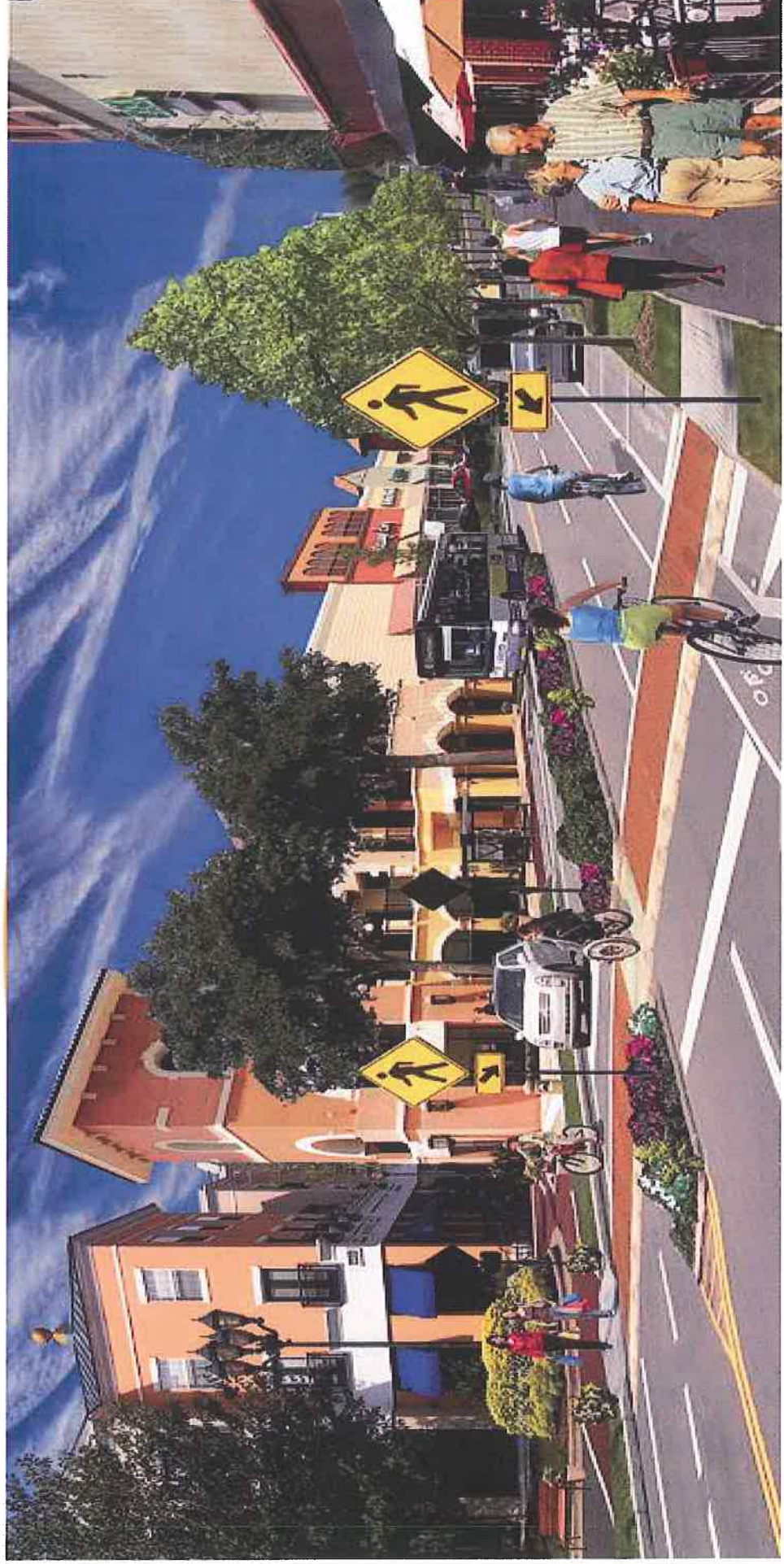
Single Family Residential



PLANNING PRINCIPLES



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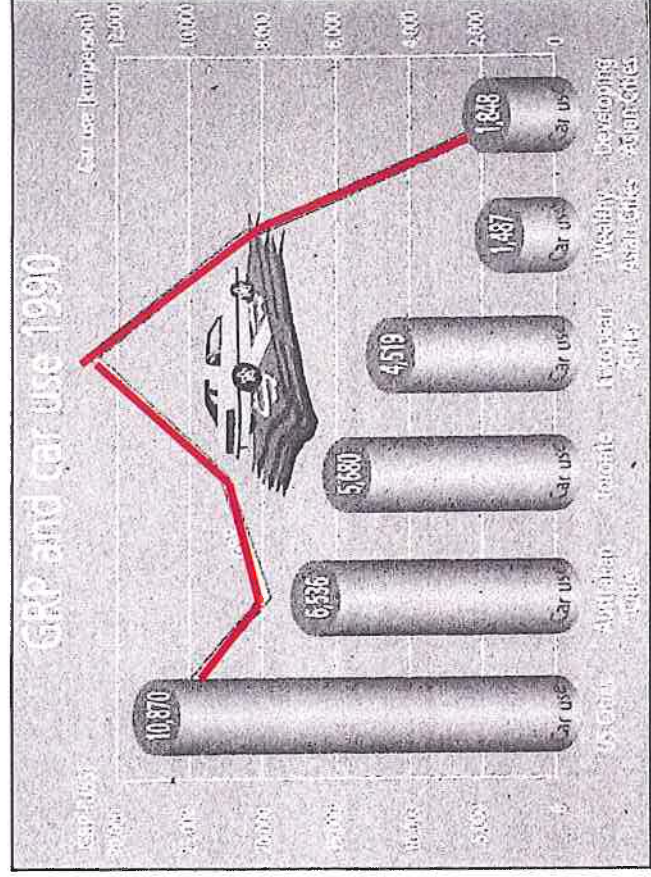
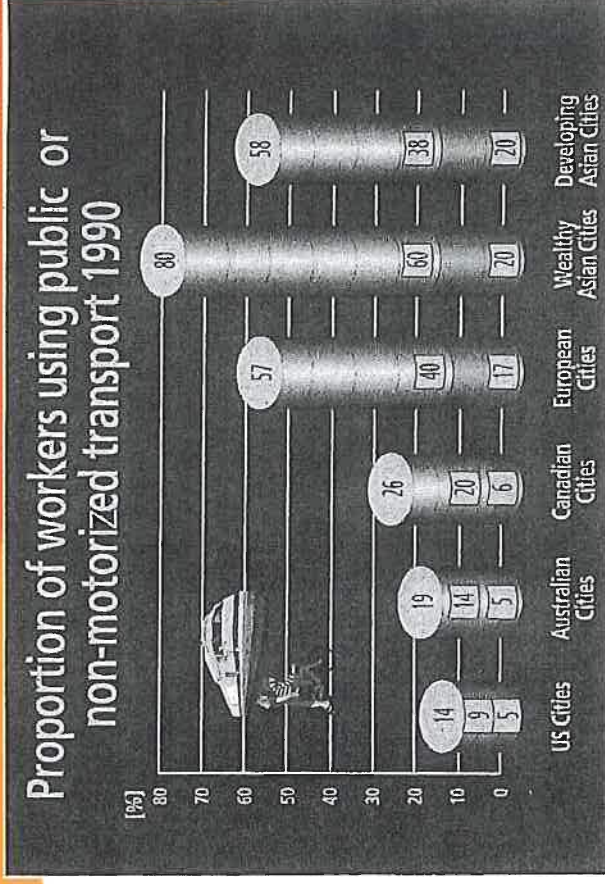


PLANNING PRINCIPLES: PROSPERITY

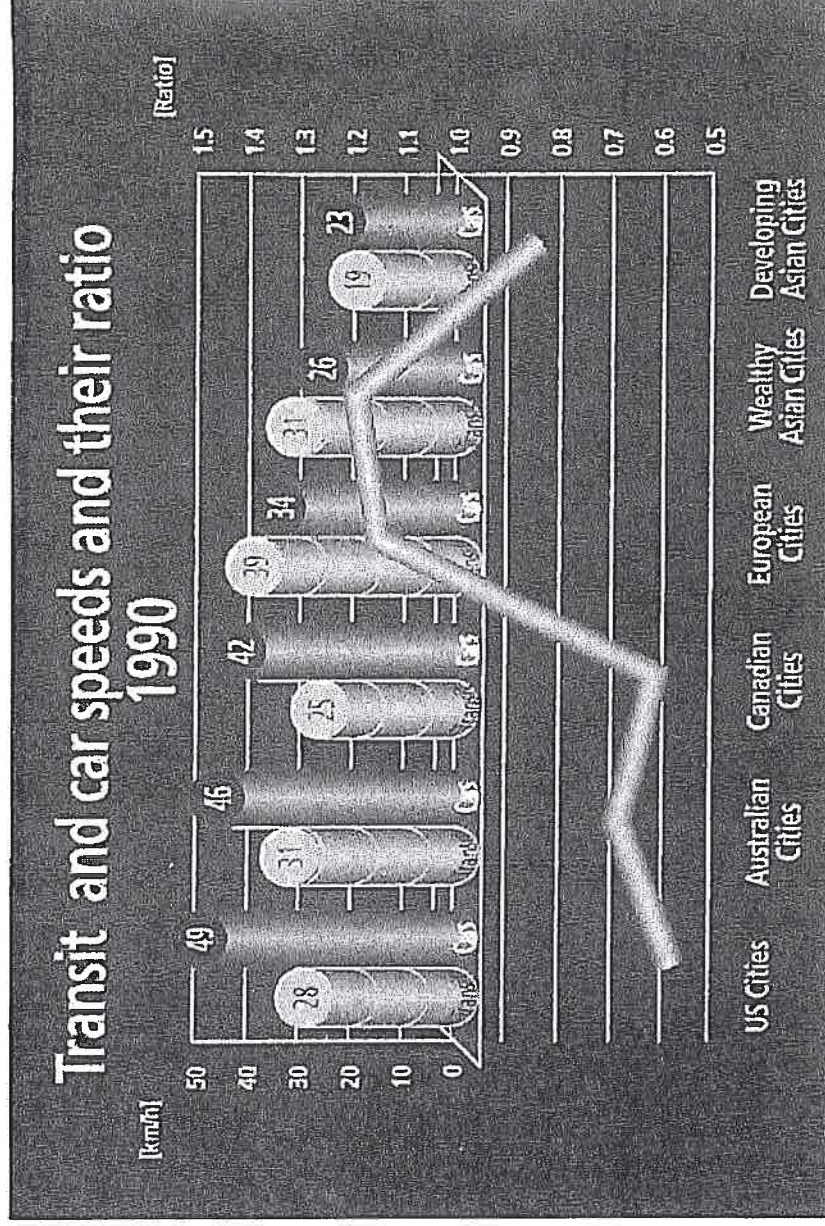
Average Per Capita Wealth
not correlated to car use.
(Newman and Kenworthy, 1999,
*Sustainability and Cities: Overcoming
Automobile Dependence*)

Canadian Household Costs (2001)
Housing: 19%
Vehicles: 13% (\$6,300/yr, \$0.12/km)
Food: 11%

(David Gurin, 2003, *Understanding Sprawl: A Citizen's
Guide*)



PLANNING PRINCIPLE: CONVENIENCE



Marchetti constant:
 Average travel-time budget in all cities is 1 hour. Key attractor to transit is its relative speed to car traffic (Newman and Kenworthy, 1999, *Sustainability and Cities: Overcoming Automobile Dependence*)

EXPANDING ROAD CAPACITY TO SOLVE CONGESTION

- 1. Roads fill up anyway with diverted/induced traffic**
- 2. Increases external costs**
- 3. Serves marginal value uses (easily forgone trips)**
- 4. Discourages alternative mode use**

PLANNING PRINCIPLE: CONGESTION

“Widening roads to ease congestion is like trying to cure obesity by loosening your belt.”
 Roy Kienitz, executive director of the Surface Transportation Policy Project

New Capacity absorbed by Induced Traffic

Author	Short-term	Long-term (3+ years)
SACTRA		50 - 100%
Goodwin	28%	57%
Johnson and Ceerla		60 - 90%
Hansen and Huang		90%
Fulton, et al.	10 - 40%	50 - 80%
Marshall		76 - 85%
Noland	20 - 50%	70 - 100%

Induced travel: An increase in total vehicle mileage due to roadway improvements that increase vehicle trip frequency and distance, but exclude travel shifted from other times and routes.

PLANNING PRINCIPLE: CONGESTION

TYPES OF GENERATED TRAFFIC (induced and diverted)	COST IMPACT
Shorter Route: improved road allows drivers to use more direct route	Reduction
Longer Route: improved road attracts traffic from more direct route	Slight increase
Time Change: reduced peak period congestion reduces the need to defer trips to off-peak periods	Slight increase
Mode Shift: Existing Travel Choices: improved traffic flow makes driving relatively more attractive than other modes.	Mod-Large Increase
Mode Shift: Changes in Travel Choice: Less demand leads to reduced rail and bus service, less suitable conditions for walking and cycling, more auto ownership	Large increase, reduced equity
Destination Change: Existing Land Use: Reduced travel costs allow drivers to choose farther destinations	Mod-Large Increase
Destination Change: Land Use Change: Improved access allows land use changes, especially urban fringe development.	Mod-Large Increase Equity costs
New Trip: No Land Use Changes: Improved travel time allows driving to substitute for non-travel activities.	Large increase
Automobile Dependency: Synergetic effects of increased automobile oriented land use & transportation system	Large increase

PLANNING PRINCIPLE: CONGESTION

Cost Impacts of Roadway Capacity Expansion

Costs Reduced	Costs Increased		
	<i>Diverted Trips</i>	<i>Longer Trips</i>	<i>Induced Trips</i>
<p>Travel Time</p> <p>Vehicle Operating Costs</p> <p>Per-mile crash rates (if implemented in conjunction with roadway design improvements, but these are often offset if traffic speeds increase).</p> <p>Per-mile pollution emissions (if congestion declines, but these may be offset if traffic speeds increase).</p>	<p>Downstream congestion</p>	<p>Downstream congestion</p> <p>Road facilities</p> <p>Traffic services</p> <p>Per-capita crash rates</p> <p>Pollution emissions</p> <p>Noise</p> <p>Resource externalities</p> <p>Land use impacts</p> <p>Barrier effect</p>	<p>Downstream congestion</p> <p>Road facilities</p> <p>Parking facilities</p> <p>Traffic services</p> <p>Per-capita crash rates</p> <p>Pollution emissions</p> <p>Noise</p> <p>Resource externalities</p> <p>Land use impacts</p> <p>Barrier effect</p> <p>Transit efficiency</p> <p>Equity</p> <p>Vehicle ownership costs</p>

Estimated direct + indirect costs of car ownership/year \$12,500-\$15,500/yr

Data on Street Conversions - Seattle, Washington

ROADWAY SECTION	DATE CHANGE	ADT (BEFORE)	ADT (AFTER)	CHANGE
Greenwood Ave. N, from N 80th St. to N 50th St.	April 1995	11872	12427	4 lanes to 2 lanes plus TWLTL plus bike lanes
N 45th Street in Wallingford Area	December 1972	19421	20274	4 lanes to 2 lanes plus TWLTL
8th Ave. NW in Ballard Area	January 1994	10549	11858	4 lanes to 2 lanes plus planted median with turn pockets as needed
Martin Luther King Jr. Way, north of I-90	January 1994	12336	13161	4 lanes to 2 lanes plus TWLTL plus bike lanes
Dexter Ave. N, East side of Queen Anne Area	June 1991	13606	14949	4 lanes to 2 lanes plus TWLTL plus bike lanes
24th Ave. NW, from NW 85th St. to NW 65th St.	October 1995	9727	9754	4 lanes to 2 lanes plus TWLTL
Madison St., from 7th Ave. to Broadway	July 1994	16969	18075	4 lanes to 2 lanes plus TWLTL
W Government Way/Gilman Ave. W, from W Ruffner St. to 31st Ave. W	June 1991	12916	14286	4 lanes to 2 lanes plus TWLTL plus bike lanes
12th Ave., from Yesler Way to John St.	March 1995	11751	12557	4 lanes to 2 lanes plus TWLTL plus bike lanes

PLANNING PRINCIPLE: THE 2+LANE DESIGN

- In all cases, capacity and transportation choice improved w/i ROW
- Approach to be used in arterial capacity improvements on Lakeshore, Hollywood, Richter, Rose (cf. Enterprise).
- Source: Road Diets by Dan Burden & Peter Lagerway, 1999

PLANNING PRINCIPLE: 2-WAY LEFT TURN

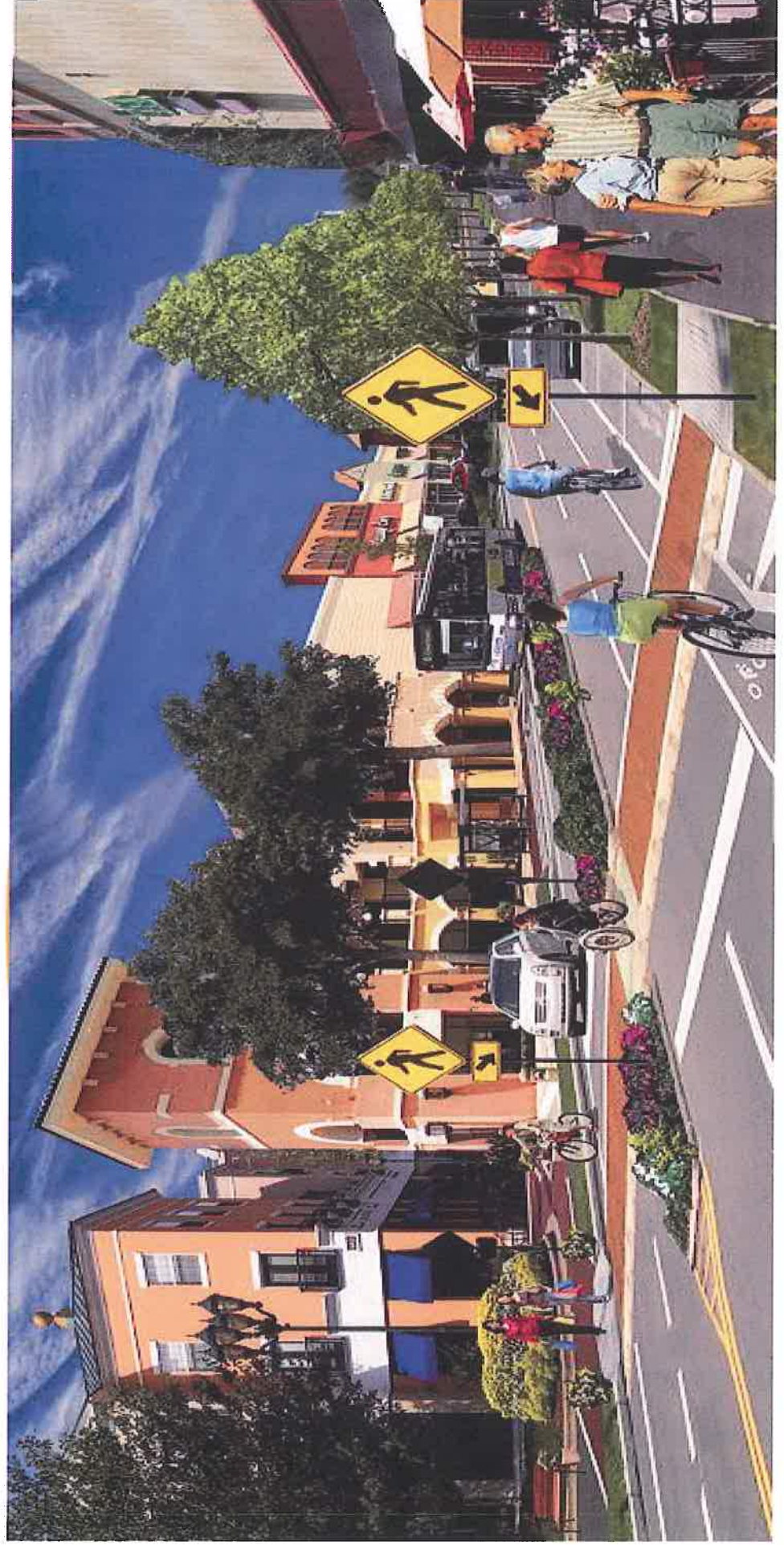
LANE BENEFITS

- ▶ Removes left turning vehicles from through lanes
 - ▶ reduce delay to through vehicles
 - ▶ reduces rear-end and sideswipe collisions
- ▶ Provides spatial separation between opposing lanes of traffic
 - ▶ reduces head-on collisions
- ▶ Functions as emergency vehicle lane
- ▶ Functions as passing lane when buses stop in through lane
- ▶ Simplifies traffic control when maintenance & construction activity requires lane closure
- ▶ Uses less ROW, makes ROW available for bike/walk

NETWORK SOLUTIONS

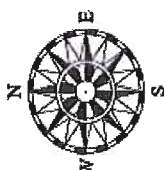
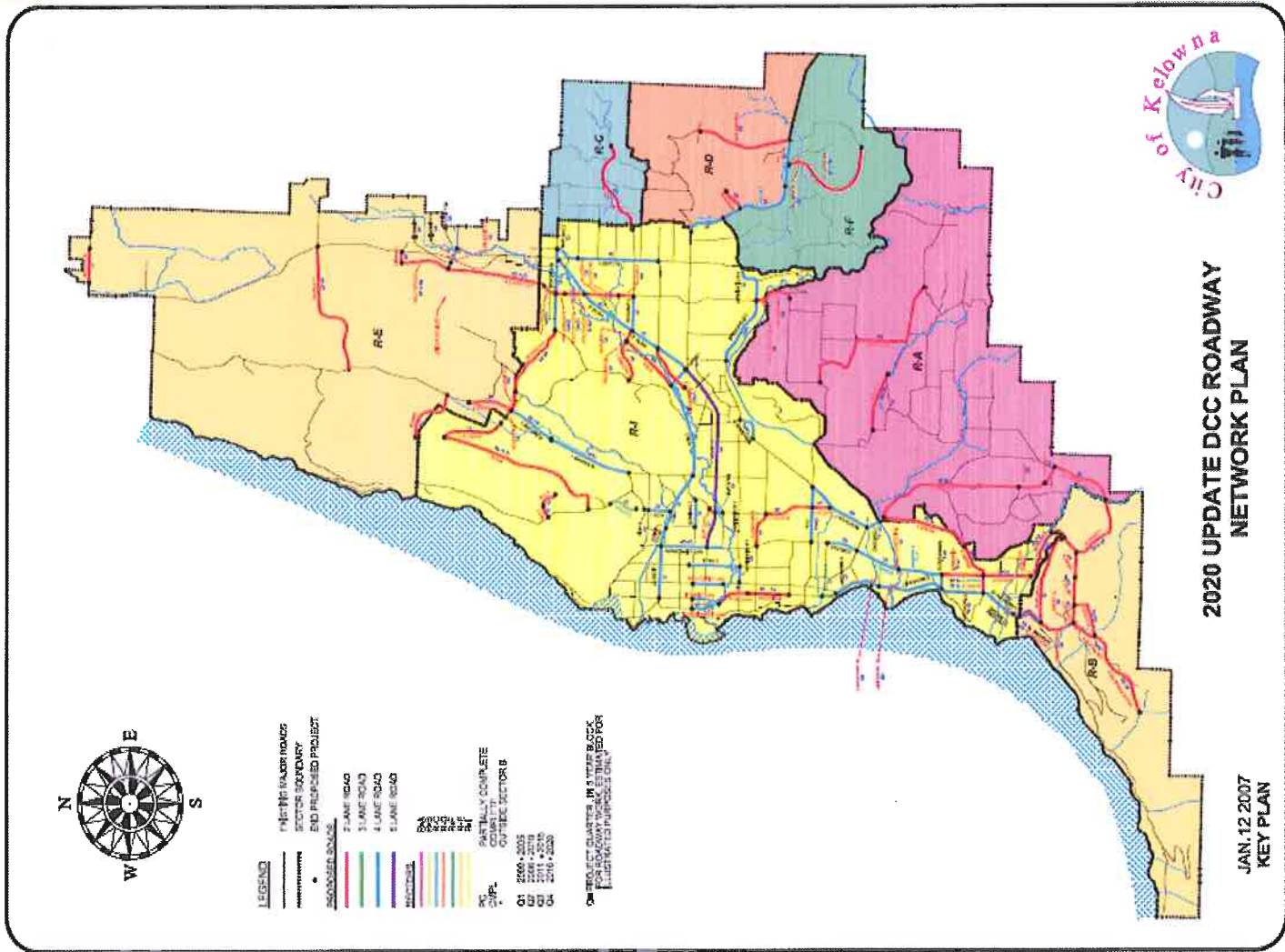


Council Workshop: 2011 January 24



2020 COMPLETED PROJECTS

- Clifton Rd: Mountain Ave to Cara Glen Way
- COB1: Gordon Dr to Spall Rd
- Gordon Dr: Lexington Dr to Lanfranco Rd
- Glenmore Rd: Dallas Rd to Scenic Dr
- Hwy 33: McKenzie Rd to Gallagher Rd
- Hwy 33-1: Enterprise Way to Hwy 97 N
- Hwy 97-1: Gordon Dr to Hwy 33 W
- Hwy Link-Pandosy 3 & 3B: Sutherland Ave to Lawrence Ave
- Hwy-Link-Richter: Bernard Ave to Sutherland Ave
- Swamp Rd: Dehart Rd to Casorso Rd
- UBC Flyover: Hwy 97 N/Hollywood Rd N/University Way



LEGEND

PHASE I ROAD INDICATOR
 SECTION BOUNDARY
 END PROPOSED PROJECT

ROADWAY STATUS

7-LANE ROAD
 5-LANE ROAD
 4-LANE ROAD
 3-LANE ROAD

ROADWAY

RA
 RB
 RC
 RD
 RE
 RF
 RG
 RH
 RI
 RJ
 RK
 RL
 RM
 RN
 RO
 RP
 RQ
 RR
 RS
 RT
 RU
 RV
 RW
 RX
 RY
 RZ

PC PARTIALLY COMPLETE
COMP COMPLETE
OP OUTSIDE SECTOR B

DATE

Q1 2006-2007
 Q2 2008-2009
 Q3 2010-2011
 Q4 2012-2020

ON RED AND BLUE QUARTERS IN A WHITE BOX, THE ROADWAY NETWORK IS LIMITED TO THE ROADWAY NETWORK ESTABLISHED FOR PLANNING PURPOSES ONLY.

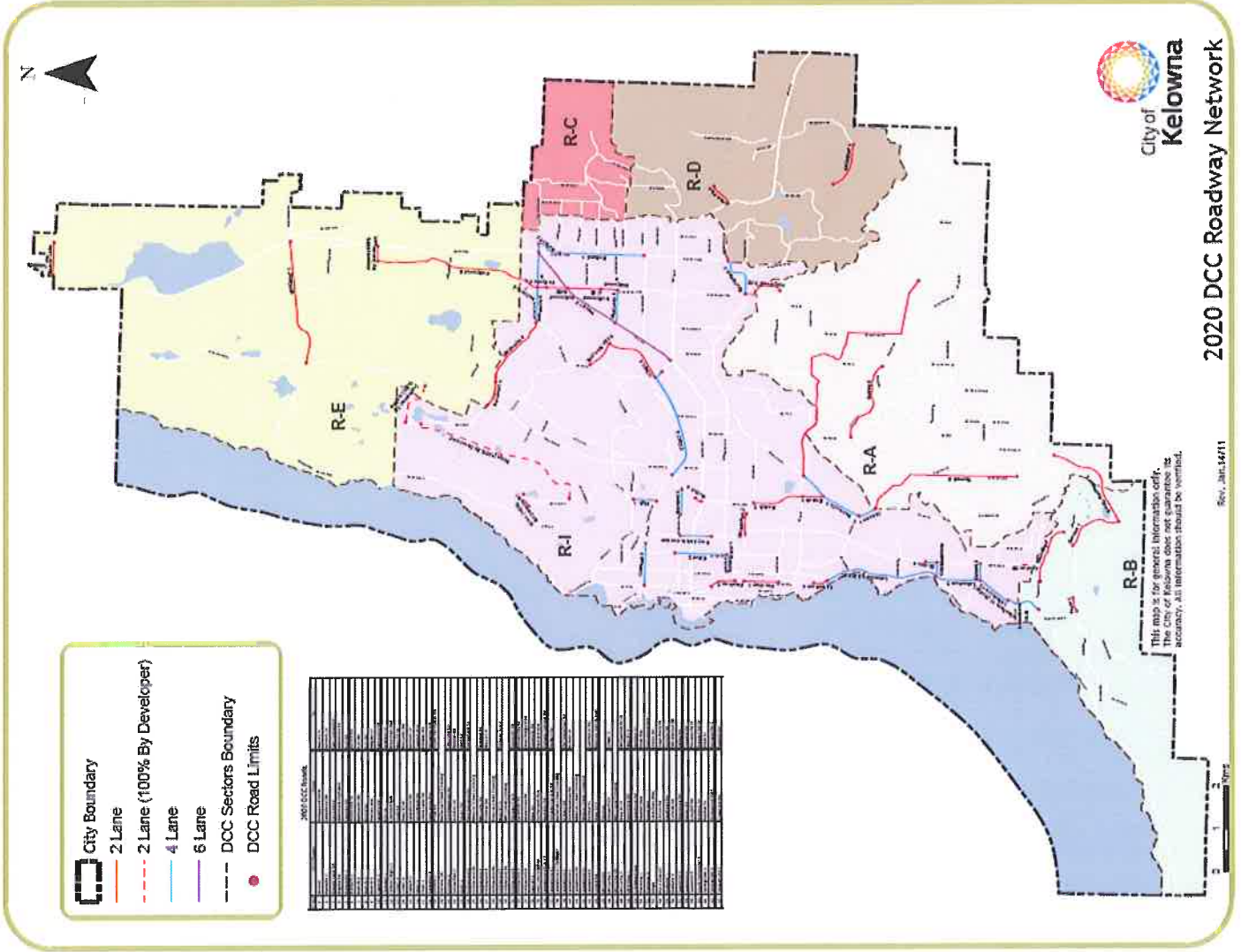


2020 UPDATE DCC ROADWAY NETWORK PLAN

JAN. 12 2007
 KEY PLAN

2020 COMPLETED PROJECTS

- Clifton Rd: Mountain Ave to Cara Glen Way
- COB1: Gordon Dr to Spall Rd
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MULTIPLE ACCOUNT EVALUATION CRITERIA

- ▶ **Financial**
 - ▶ Capital Cost
 - ▶ Life Cycle Cost
 - ▶ Indirect Public Costs
- ▶ **Customer Service**
 - ▶ Time
 - ▶ Accident
 - ▶ Direct Vehicle Costs
- ▶ **Economic Impact**
 - ▶ Commercial congestion
 - ▶ Lost Productivity
- ▶ **Social/Community**
 - ▶ Noise, Pollution
 - ▶ Residential impacts
 - ▶ Community Severance
 - ▶ Visual Impact
 - ▶ Personal Obesity
 - ▶ Disaster Routes
 - ▶ Modal Choice
- ▶ **Environmental**
 - ▶ Sterilized land
 - ▶ GHG emissions
 - ▶ Water pollution
 - ▶ Heat Island

METHODOLOGY

- ▶ Test Alternatives: Cost & Performance
 - ▶ Do nothing
 - ▶ Balanced: strengthen grid and sustainable transportation modes
 - ▶ Alternative: COMC extension from Spall to Hwy #33 w/o Rutland 1,3,4 and McCurdy 3
 - ▶ Or the Opposite

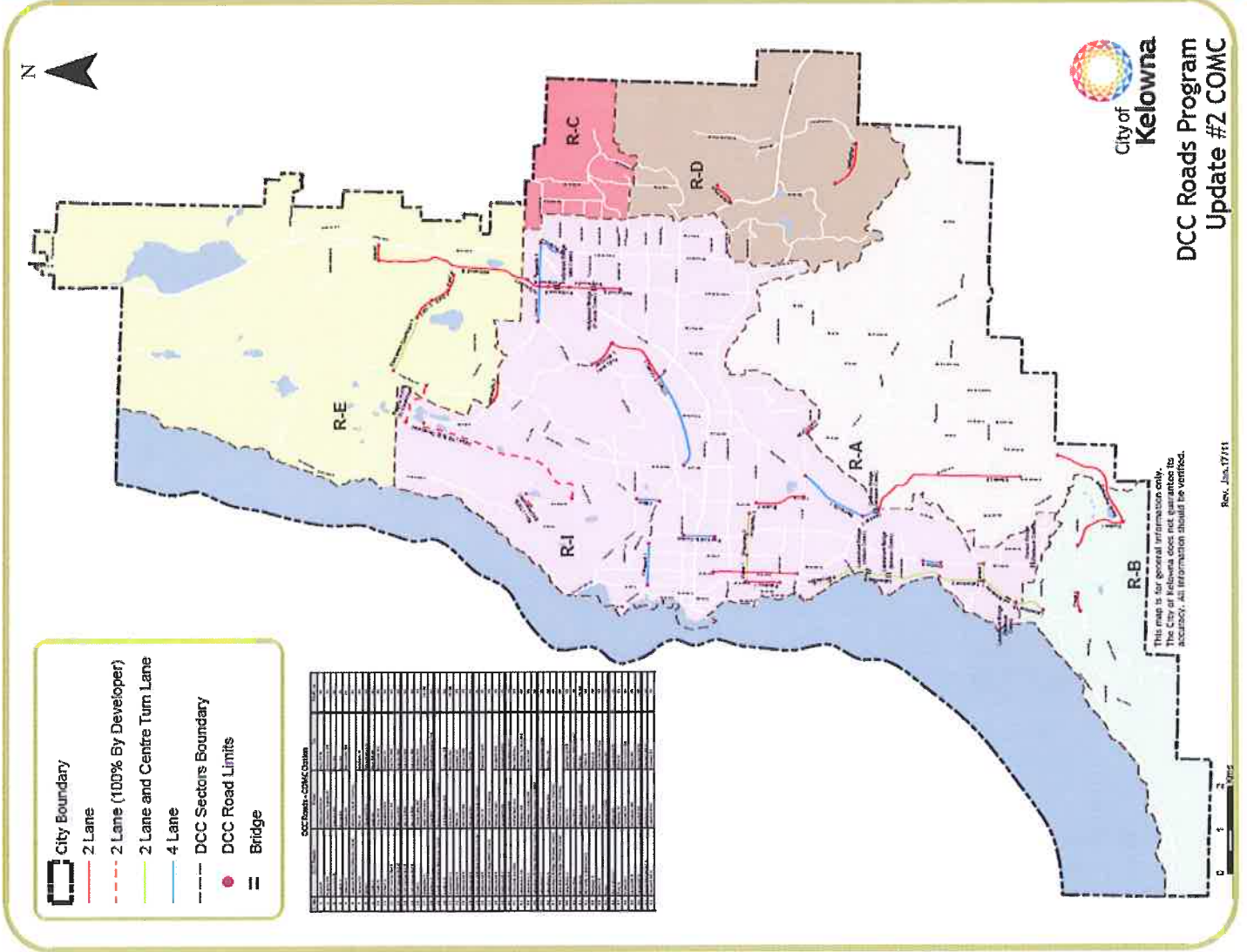
BALANCED APPROACH- FEATURES

- ▶ Roads
 - ▶ Increase choices (capacity, resilience)
 - ▶ Optimize use of existing infrastructure
 - ▶ Balance commute time/cost of transit/SOV
- ▶ Multi-use corridors-Active Transportation
 - ▶ Complete connectivity and amenity to attract users, and improve safety

ROADS PROGRAM

Key Projects:

- South Perimeter & Stewart Road: (alternative access for Neighbourhood 3)
- Lakeshore 1A, 1B, 1C, 1C (Bridge), 2, 3, 3b, 3c (Barnaby Rd to Richter St): 2-lane with turning lane & multi-use corridor
- Rose 1 – Pandosy St to Ethel St and Guisachan 3 – Ethel St to Gordon Dr (KGH)
- E-W Connector 1, 2, 3 & 4 – Glenmore Rd N to Academy Way (reconceived by-pass)
- Hollywood 3, 4, Francis Creek Bridge, 5, Mill Creek Bridge, 6, 7 & 8 – McCurdy Rd Quail Ridge Blvd – UBCO (transit & multi-use)
- COMC 2 (Spall to Hwy#33)



DCC Roads Program Update #2 COMC

REDUCED SCOPE PROJECTS

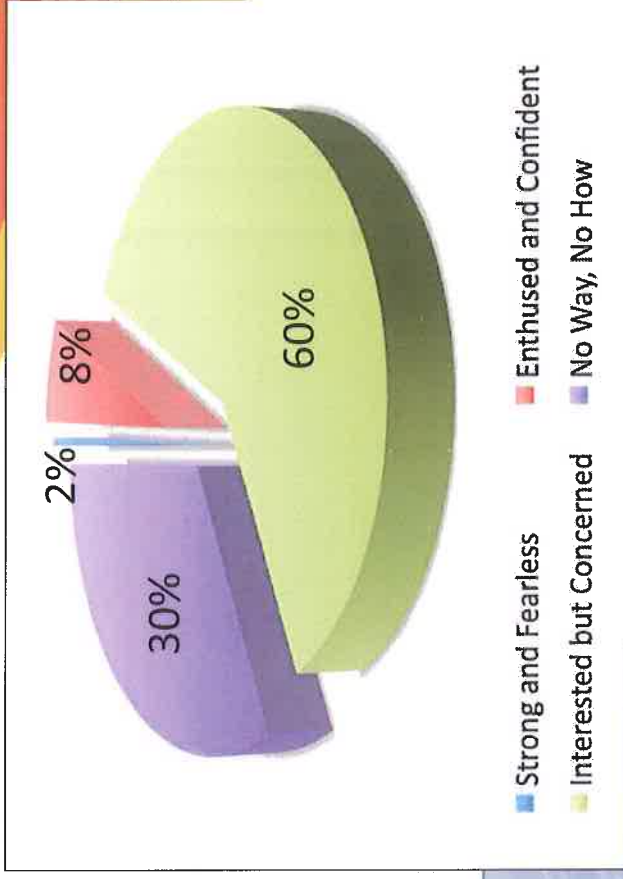
- ▶ **Projects with Reduced Scope**
- ▶ **COMC 3 (Hwy 33 W to McCurdy Rd):** Land only. No construction cost is allocated to the project.
- ▶ **Dehart 2 (Lakeshore Rd to Gordon Dr):** Only three lanes (two lanes plus middle turning lane) will be constructed instead of four lanes previously planned.
- ▶ **Ethel 2 (Springfield Rd to Lawson Ave):** No longer be widened to four lanes but will be an active transportation corridor.
- ▶ **Lakeshore 1A, 1B, 1C, 1C (Bridge), 2, 3, 3b, 3c (Barnaby Rd to Richter St):** Constructed as 2-lane road with a centre turning lane (wherever necessary) and an active transportation corridor. A 30 meter road right of way will be protected. Previously shown as a four lane road.
- ▶ **McCulloch (Mission Creek Bridge to Hall Rd):** Limited to improvements between Mission Creek Bridge & Hall Rd including Spiers Rd realignment to KLO Rd
- ▶ **McCurdy 1 (COMC 3 to Dilworth Dr):** ROW only will be protected.

DELETED PROJECTS

- ▶ Beaver Lake Rd - City Limits to East Connector
- ▶ Bernard 2 - Richmond St to Burtch Rd
- ▶ Burtch 1 - Benvoulin Rd to KLO Rd
- ▶ Burtch 5 - Harvey Ave to Kelglen Cr
- ▶ Gully 2 - Spiers Rd to Hart Rd
- ▶ Hollywood 2 - Springfield Rd to East Kelowna Rd
- ▶ Hollywood 2b - Bridge over Mission Creek
- ▶ Hwy 97 2 - Hwy 33 W to Sexsmith Rd
- ▶ McCurdy 2b - Mill Creek Crossing
- ▶ McKinley 1 - Glenmore Rd to Hwy 97 N
- ▶ Old Meadows - Lakeshore Rd to Gordon Dr
- ▶ Sexsmith 4 - Valley Rd to Longhill Rd
- ▶ Springfield 1 - Richter St to Ethel St
- ▶ Springfield 3 - Hollywood Rd S to Rutland Rd S
- ▶ Rutland 1 - Leathead Rd to Cornish Rd

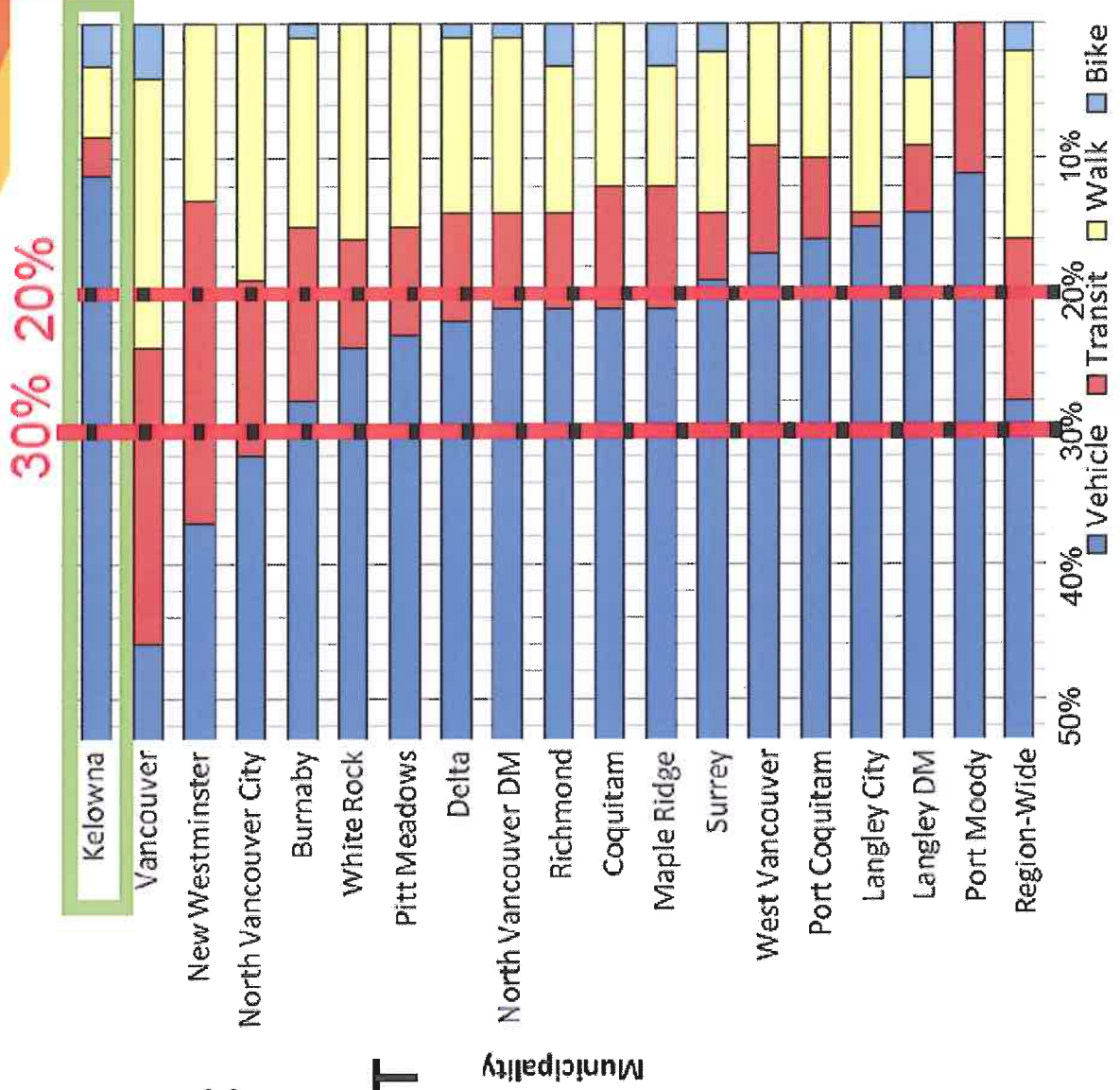
CYCLING

76% of 789 people responding to Summer 2008 OCP survey chose adding a bike lane on an arterial road instead of preserving parking.



CHALLENGE: KELOWNA'S MODAL SPLIT

- Cars > Port Moody
- Transit < Langley DM
- Bike = Richmond
- Walk = Langley DM



ACTIVE TRANSPORTATION READINESS

Are we driving less?

Commute To Work

	1996	2006
	81.4%	79.3%
	7.1%	7.8%
	2.2%	2.9%
	5.5%	5.6%
	2.5%	3.0%

In BC, 10% of people took transit, 7% walked, and 2% cycled to work in 2006.

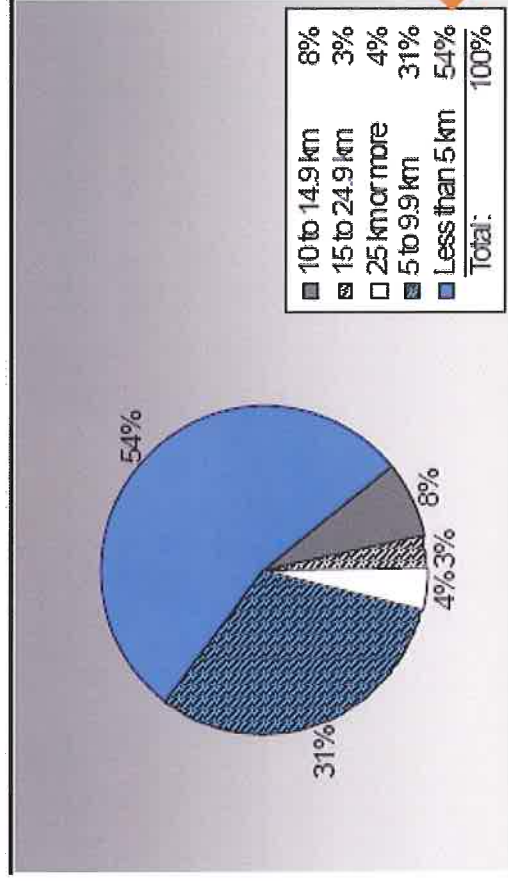
Residential Density

Kelowna City: 10.1 people per net ha

BC municipal average: 7.4 people per net ha

Are we living closer to where we work?

Commute Distance



In BC, 41% of people lived within 5km of their work in 2006.

CEEI Reports are a result of a multi-agency effort to provide a province-wide solution to assist local governments in BC to track and report on community-wide energy consumption and greenhouse gas (GHG) emissions every two years. CEEI Reports are one of the many resources available through the Climate Action Toolkit (<<http://www.toolkit.bc.ca>>), a web-based service provided through the ongoing collaboration between UBCM and the Province.

2008 KELOWNA CENTRAL CORE MODAL SPLIT



■ Auto ■ Transit ■ Bike/Walk



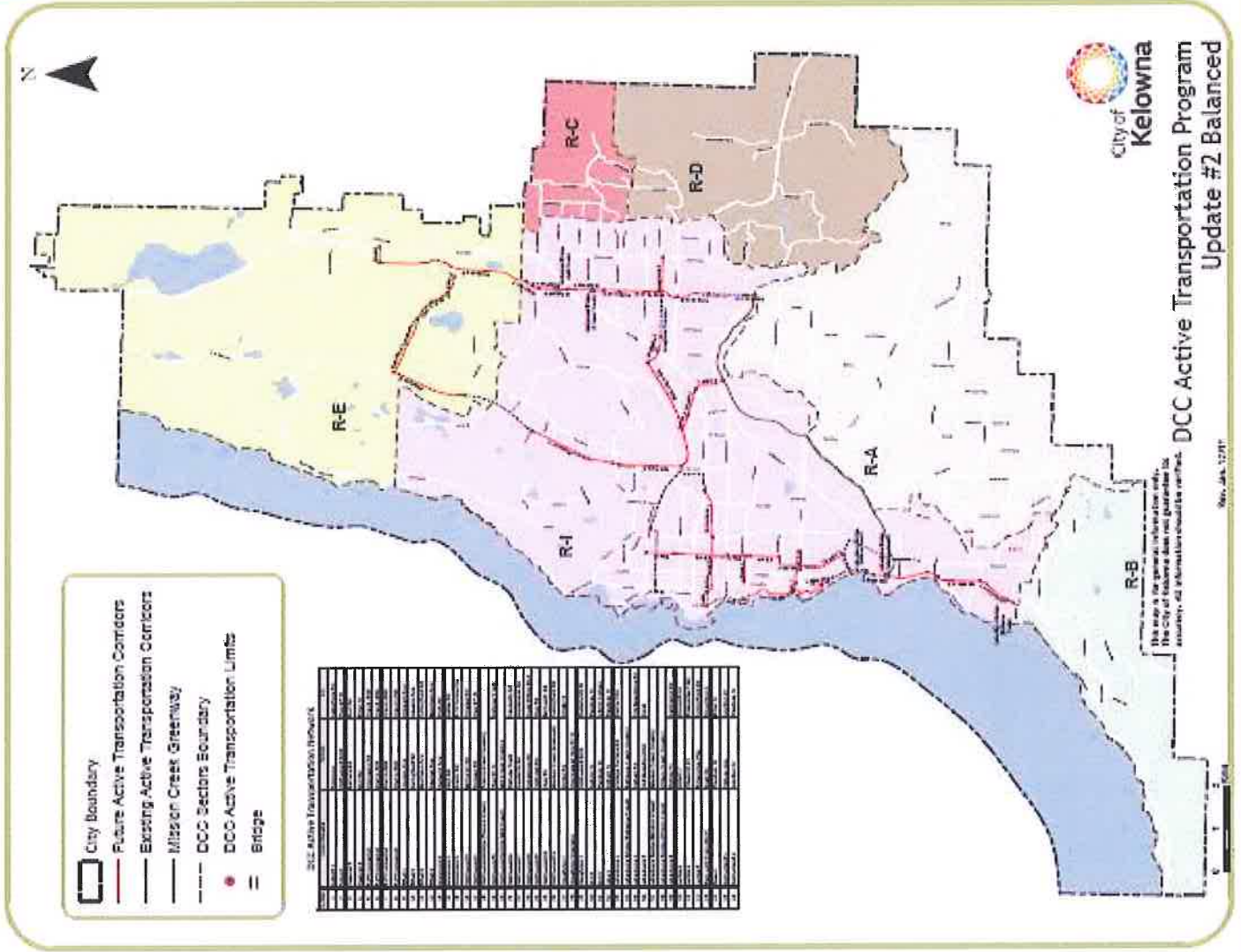


ACTIVE TRANSPORTATION PROGRAM

ACTIVE TRANSPORTATION only

- Abbott 1: Rose Ave to Lakeshore Rd
- Casorso 3 & 4: Barrera Rd to Ethel St
- Ethel 1, 2, 3 & 4: Raymer Ave to Clement Ave
- Glenmore 3, 4 & 5: Clement Ave to E-W Connector
- Hollywood 9, 10, 11: Mission Creek Greenway to McCurdy Rd
- Houghton 1, 2 & Overpass: Rutland Rd N to COMC 3
- KLO 1 & 2: Abbott St to Okanagan College
- Lake 1: Abbott St to Pandosy St
- Leckie 1, 2 & 3: COMC 2 to Mission Ck Greenway
- Rails with Trails: Spall Rd to Houghton 1
- Sutherland 1 & 2: Harvey Ave to Pandosy St

Provides continuous active transportation corridors routes between town centres and key destinations.



PERFORMANCE (TO BE COMPLETED)

Performance	Base	Do Nothing	Balanced-COMC	Balanced Rutland
VKMT				
Avg Auto Time				
Transit Trips				
Walk Trips				
Person Trips				
Lane km failed				
GHG (tonnes)				
Approx. Cost				

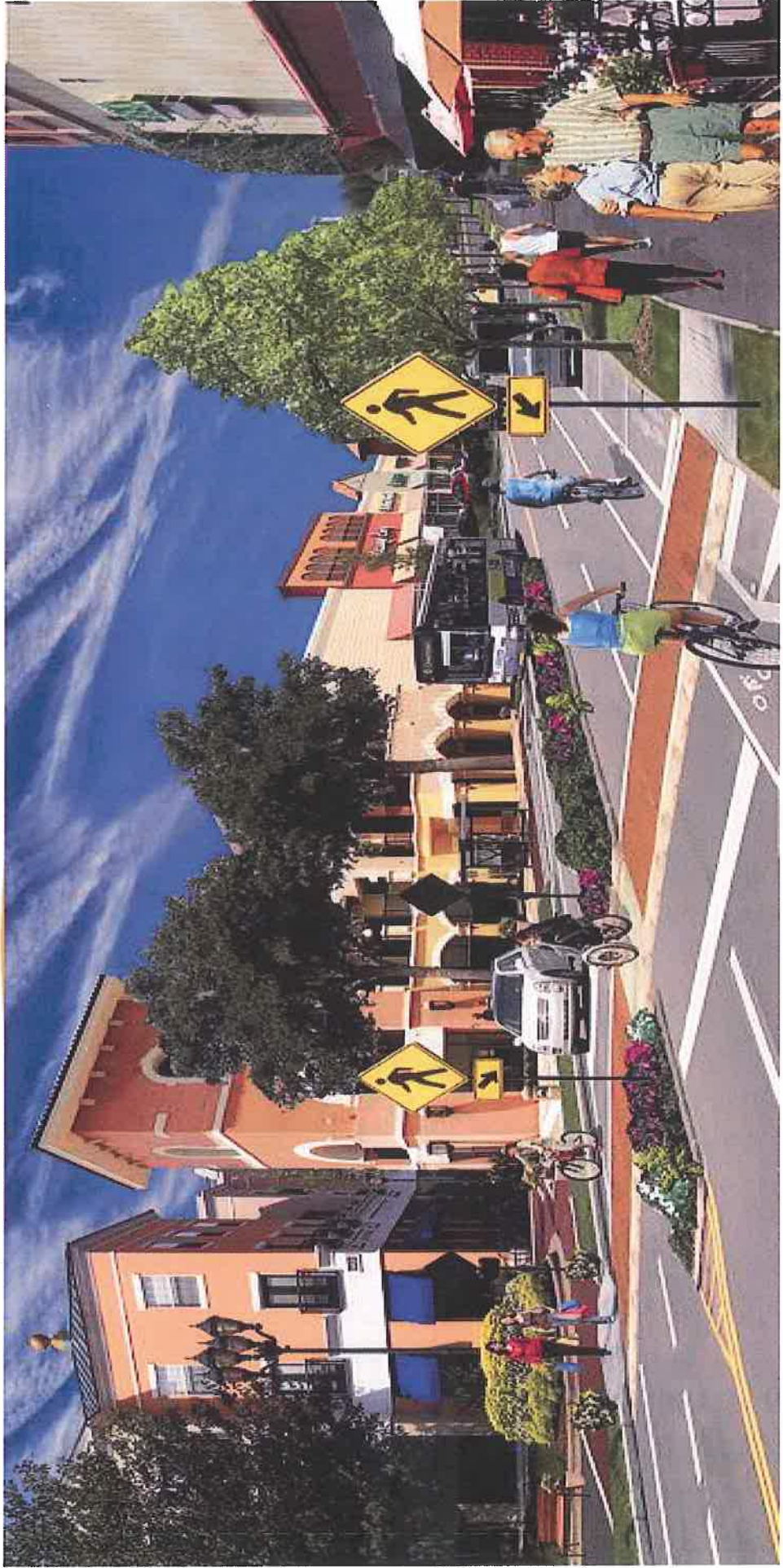


PROGRAM COSTS & DCC RATES

City of

Kelowna

Council Workshop: 2011 January 24



TOTAL DCC PROGRAM COST (COSTS IN MILLIONS)

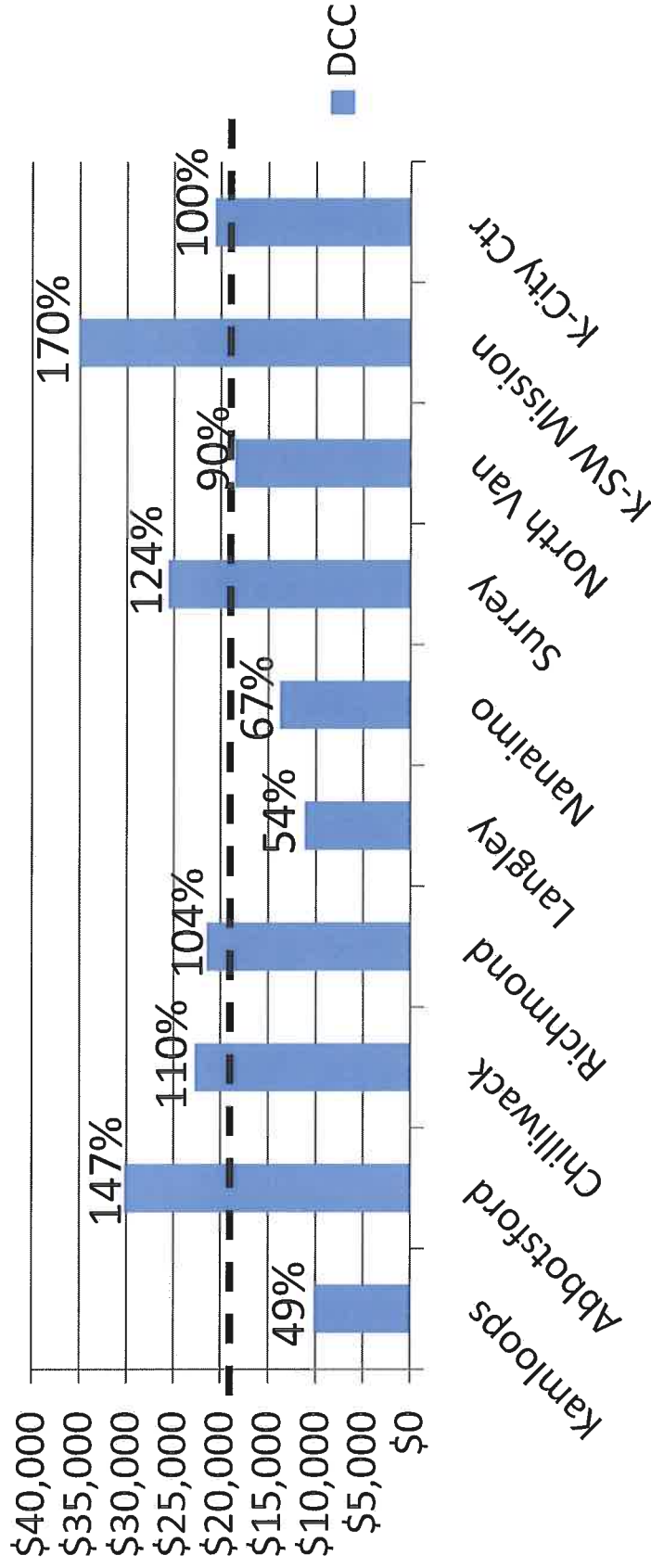
Service	Grant	Dev Build	DCC's	Tax	Utility Rates	2030 Totals	2020 Totals	% change
Roads	23.8	52.3	190.8	126.3		393.3	588.5	-33.2
Water		5.4	23.0		30.7	59.1	48.1	+22.8
Trunks		4.9	23.6		9.4	37.9	43.3	-12.5
Treat't			66.6		19.6	86.2	92.0	-6.2
Parks	5.4		107.1	13.0		125.5	144.1	-12.9
2030	29.2	62.7	411.0	139.3	59.7	701.9	915.9	-23.4
2020	43.2	99.0	577.5	154.9	41.5	915.9		
% change	-32.4	-36.8	-28.8	-10.1	43.8	-23.4		

2030 DCC RATE STATUS (WORK IN PROGRESS)

System	Current City Centre	2030 City Centre	% Change	Current South Mission	2030 South Mission	% Change
Water	\$1,757	\$998	-42.3%	\$1,289	\$679	-47.3%
Wastewater Trunks	\$1,562	\$1,294	-17.2%	\$1,979	\$1,903	-3.8%
Wastewater Treatment	\$3,044	\$3,722	+22.3%	\$3,044	\$3,722	+22.3%
Parks	\$5,069	\$5,300	+4.6%	\$5,300	\$5,483	+4.6%
Transportation	\$9,176	\$7,461	-18.7%	\$23,743	\$23,358	-1.6%
TOTAL	\$20,608	\$18,774	-8.9%	\$35,124	\$34,963	-0.5%

DCC RATES - JULY 2010

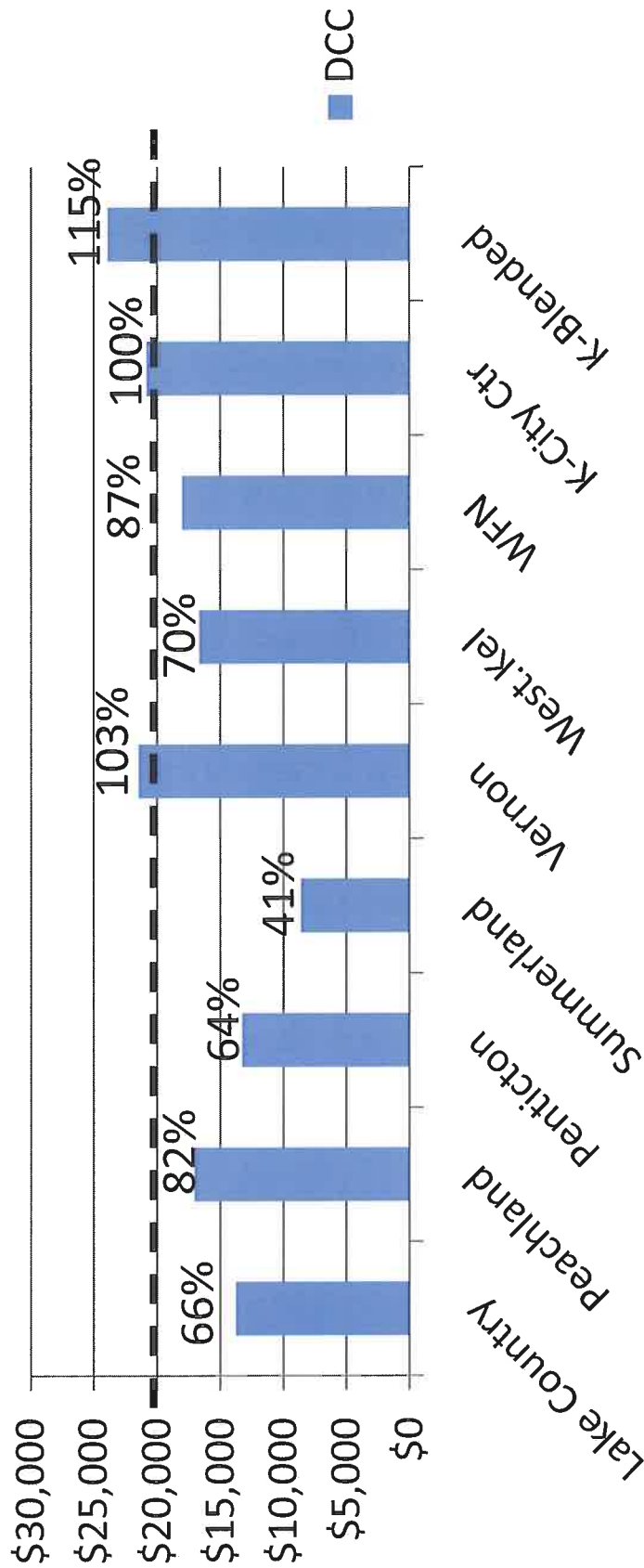
Single Family Residential



Percentages reflect rates relative to Kelowna City Centre as base-line

DCC RATES - OKANAGAN VALLEY - JULY 2010

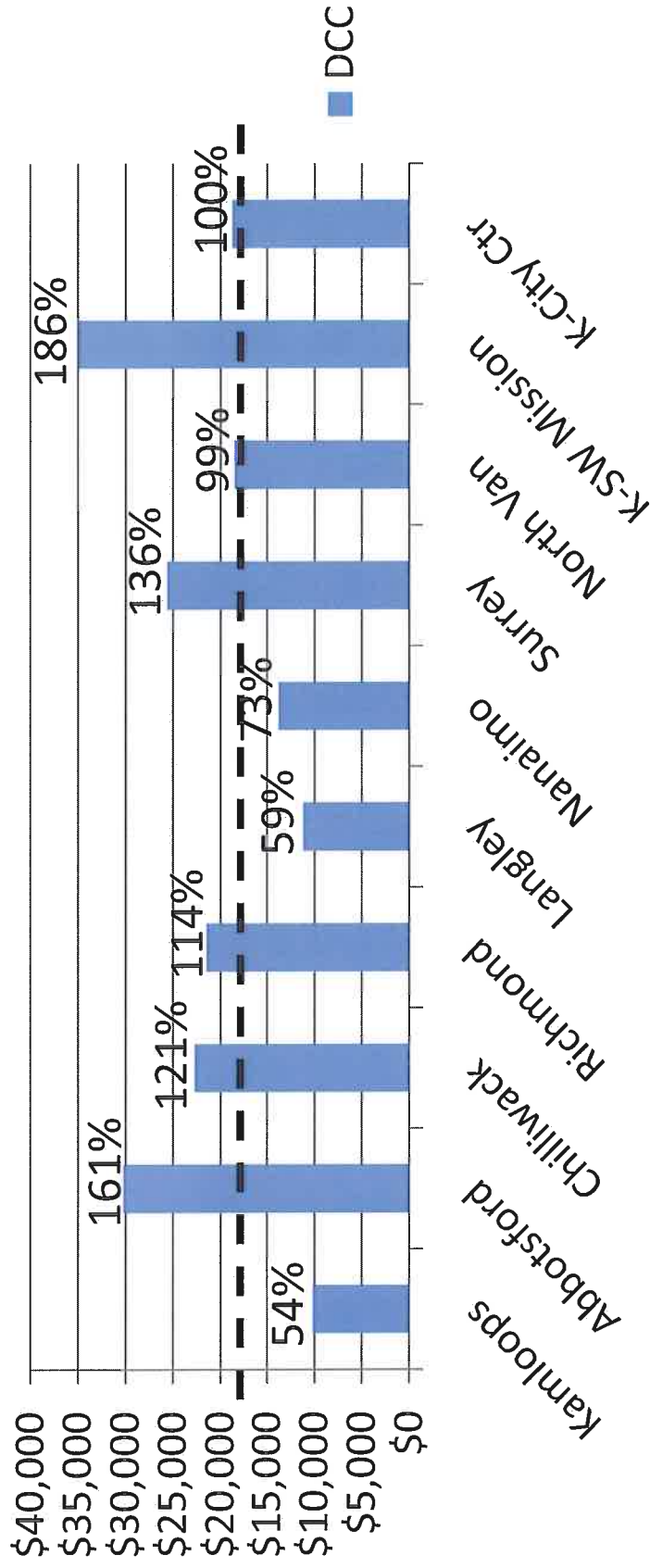
Single Family Residential DCC



Percentages reflect rates relative to Kelowna-South-West Mission as base-line
 West Kelowna DCC is roads and parks only, water and waste-water under development;
 RDCO utility charges to WFN used to approximate comparables

DCC RATES - PROPOSED 2030 KELOWNA

Single Family Residential

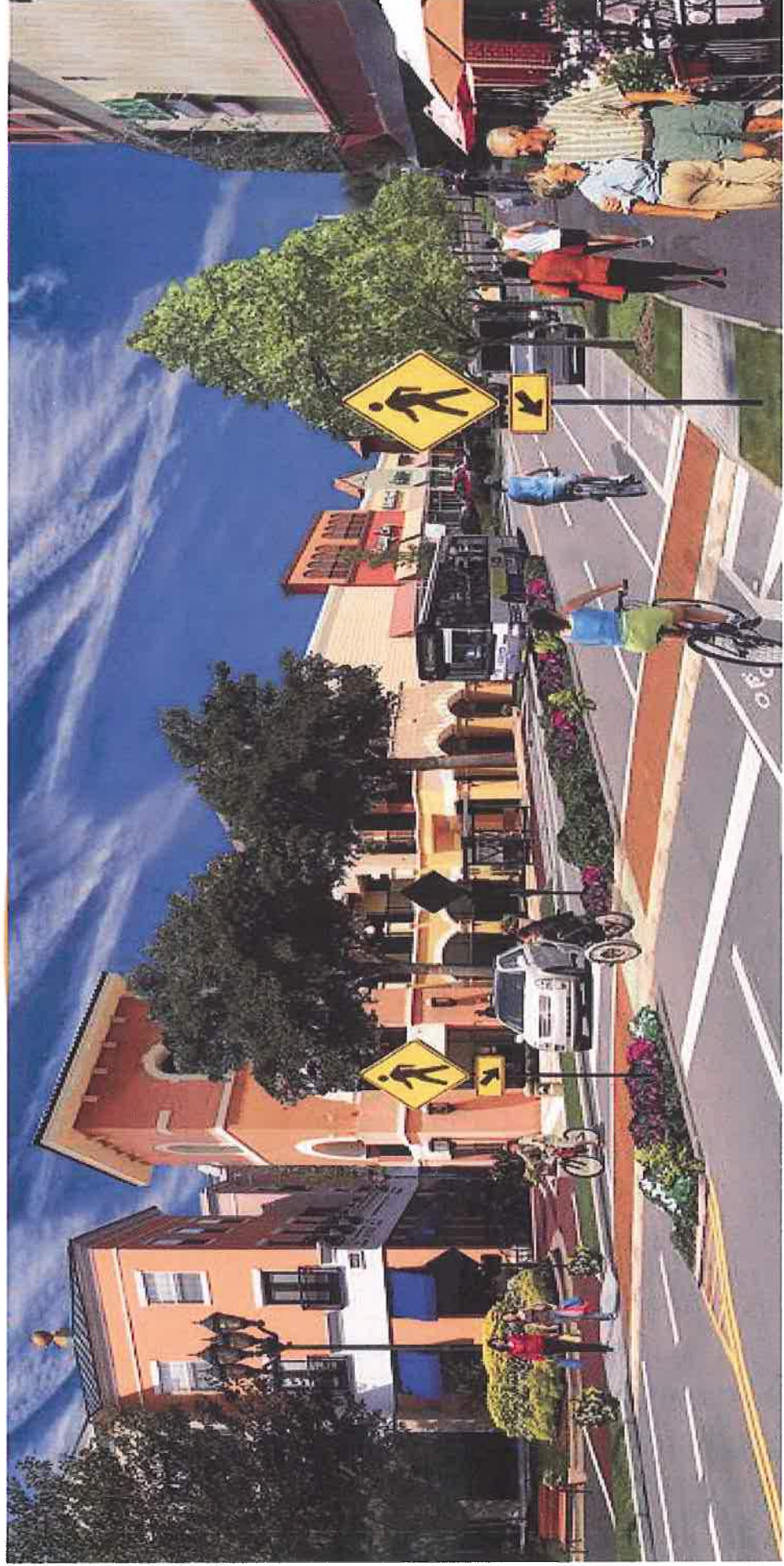


Percentages reflect rates relative to Kelowna City Centre as base-line

NEXT STEPS & RECOMMENDATIONS



Council Workshop: 2011 January 24



TENTATIVE SCHEDULE FOR

OCP & 20-YEAR DCC

- ▶ Jan 24: Council support for consultation
- ▶ Public Open Houses
 - ▶ Feb 17 (Thur): Downtown
 - ▶ Feb 19 (Sat): Mid-Town/Rutland/Glenmore
 - ▶ Feb 23 (Wed): Lower/South Mission
 - ▶ Development Community meetings
- ▶ March 2011: RTC-Public Input, Revised Recommendations for Approval
- ▶ April 2011: Submit Bylaw to Province
- ▶ May/June 2011: Public Hearing
- ▶ May/June 2011: 4th Reading

RECOMMENDATIONS

- ▶ Support transportation network for public consultation
- ▶ Direct staff to return to Council with public input & revised recommendations as required