2ND REPORT OF THE

RAPID TRANSIT IMPLEMENTATION WORKING GROUP

Meeting held on December 15, 2016, commencing at 4:34 PM, in the Council Chambers, Second Floor, London City Hall.

PRESENT: Councillor P. Squire (Chair); Mayor M. Brown; Councillors J. Helmer, J. Morgan and H. L. Usher; S. Rooth, D. Sheppard and E. Southern; and J. Martin (Secretary).

ABSENT: Councillors B. Armstrong, A. Hopkins, P. Hubert and T. Park.

ALSO PRESENT: G. Barrett, A. Dunbar, J.M. Fleming, J. Ford, K. Graham, D. MacRae, K. Paleczny, K. Scherr and E. Soldo.

I. CALL TO ORDER

1. Disclosures of Pecuniary Interest

That it BE NOTED that Councillor J. Morgan disclosed a pecuniary interest in clause 2 of this Report, having to do with Western University route options, by indicating that he is employed by Western University.

II. SCHEDULED ITEMS

2. Western University Route Options

That it BE NOTED that the Rapid Transit Implementation Working Group received the ~~attached~~ presentations from P. White, Executive Director, Government Relations and Strategic Partnerships, Western University, and E. Peissel, IBI Group, with respect to Western University route options.

3. Delivery of Rapid Transit Infrastructure - P3 - Public Private Partnership Overview

That it BE NOTED that the Rapid Transit Implementation Working Group received the ~~attached~~ presentation from M. Cunningham, IBI Group and E. Soldo, Director, Roads and Transportation, with respect to an overview of Rapid Transit infrastructure - P3 - Public Private Partnership.

4. Richmond Street Tunnel - Underground Utilities Rerouting

That it BE NOTED that the Rapid Transit Implementation Working Group received the ~~attached~~ presentation from J. Witherspoon, IBI Group and E. Soldo, Director, Roads and Transportation, with respect to the Richmond Street tunnel - underground utilities rerouting.

III. CONSENT ITEMS

5. 1st Report of the Rapid Transit Implementation Working Group

That it BE NOTED that the 1st Report of the Rapid Transit Implementation Working Group, from its meeting held on November 10, 2016, was received.

IV. ITEMS FOR DISCUSSION

None.

V. DEFERRED MATTERS/ADDITIONAL BUSINESS

None.

VI. ADJOURNMENT

The meeting adjourned at 6:28 PM.

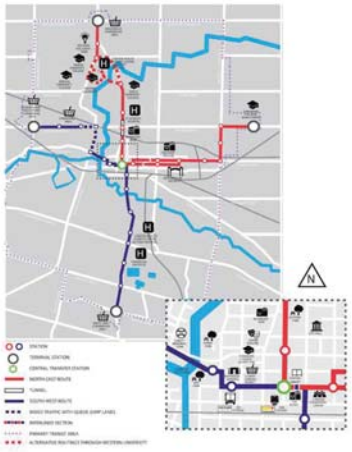
NEXT MEETING DATE: January 12, 2017

Western Bus Rapid Transit Update

Western

Background

- SHIFT – London's Rapid Transit Initiative
- Board support for LRT to campus but not through campus
- City Business Case now full BRT system – Campus route consultation
- Final routing decision Q1 2017
- Open Space Master Plan underway
- Technical assessment of full BRT route alternatives
- Evaluate against objectives of Strategic Plan, Campus Master Plan and emerging Open Space Plan



Western

Vision & Objectives

Strategic Plan Goals (2013)	Campus Master Plan (2015)	Emerging Open Space Plan Principles (2016)
▪ **Raise Expectations:** Create a world-class research and scholarship culture ▪ **Lead in Learning:** Provide Canada's best education for tomorrow's global leaders. (international attraction, diversity, sustainability ethos) ▪ **Reach Beyond Campus:** Engage alumni, community, institutional and international partners. ▪ **Take Charge of Destiny:** Generate and invest in new resources in support of excellence.	**Core Principles** ▪ Support academic mission ▪ Provide the best student experience ▪ Guide growth and change ▪ Enhance quality of campus environment ▪ Support interdisciplinary study and interaction ▪ Ensure safety, health, access and mobility ▪ Incorporate sustainability **Key Initiatives** ▪ Intensify the Core Campus ▪ Improve pedestrian environment of Western Road ▪ Promote parking management and alternatives ▪ Improve campus connectivity (particularly within campus) ▪ Create high quality public spaces ▪ Identify/define campus gateways	▪ **Human Place:** People are the priority on campus. It must be safe and inviting, encouraging interaction of the diverse campus community. ▪ **Access:** University should be connected to the larger London community by a diversity of modes. ▪ **Equity:** All people are valued. Access, use, enjoyment and learning on the campus should be available to all irrespective of culture, income or physical ability. ▪ **Mobility:** The campus is a connected place where people move easily between buildings and through spaces via a variety of modes. Physical activity is valued to promote health of body and mind. ▪ **Resilience:** The campus has and will endure change. Redundancies and flexibility ensure durability. ▪ **Pedagogy:** The campus is a place of learning. Spaces and systems must support the educational mission and promote learning.

Western

Technical Assessment Criteria

- The number of proposed rapid transit stations servicing the campus and the attractiveness of particular station sites.
- The length of the route from Richmond Street at Huron Street to Western Road at Windermere Road.
- The approximate transit travel time along the assessed route assuming a top operating speed of 35 km/hour on internal campus roads.
- A sum of all the existing peak transit boardings within 400 m of the stations along the route.
- The walk time between the geographic centre of campus (McIntosh Gallery) as identified by the City of London and the closest rapid transit station on the route.

Western

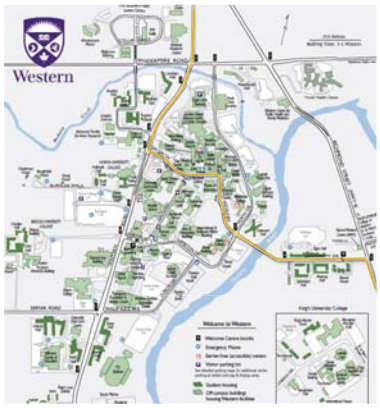
Evaluation Metrics

Plan Principle/Objective	Qualitative Evaluation Measure(s)
Attract top talent: strengthen the ability of the University to compete in attracting leading faculty and top scholarship students from across Canada and the globe.	▪ Efficiency of connection to the Downtown and other key regional destinations. ▪ Legibility of route and access to destinations.
Lead in Learning: Support leading research and teaching	▪ Potential impacts on sensitive research and other activities
Promote sustainability: Reduce environmental impacts with regard to transportation-related emissions and stormwater from surface runoff.	▪ Ability to support a mode shift among the university community to reduce vehicle kilometers traveled (VKT). ▪ Potential to enable reduction in impervious surface area dedicated to vehicle demand such as travel way widths and surface parking
Promote a pedestrian-oriented campus: Support and enable the reduction or elimination of private vehicle traffic in the core of the campus	▪ Potential to negatively impact pedestrian safety ▪ Potential to provide a non-auto alternative to access campus destinations
Enable sustainable growth: Support planned campus growth by providing access, especially by non-auto means	▪ Potential to reduce vehicle trip generation rates at planned campus expansion sites ▪ Potential to reduce parking demand
Campus connectivity: Strengthen the connection and accessibility between campus precincts.	▪ Viability to use the proposed alignment to meet intra-campus connection demands
Quality of place: Facility design compliments visual character of the campus and campus landscape	▪ Potential to negatively impact or degrade elements that contribute to campus identity and pride ▪ Potential to lead to improvement of Western Road

Western

1. Middlesex Drive Alternative

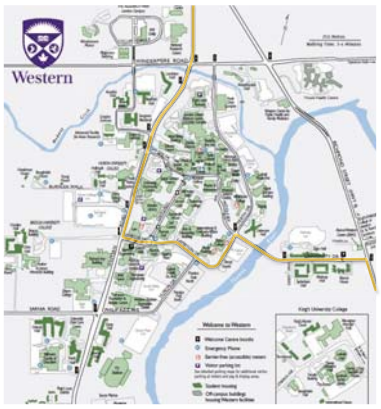
University Objectives Metrics	Middlesex
Efficient connection to Downtown	Good
Legibility of route	Excellent
Impact on research and other labs	Poor
Potential for mode shift (reduced parking demand)	Good
Potential to reduce impervious surface	Moderate
Impact on pedestrian safety	Poor
Access to campus destinations	Excellent
Reduced trip generation for new development	Poor
Intra-campus connectivity potential	Good
Potential visual impact	Poor
Impact on Western Road	Moderate



Western

2. Lambton Drive Alternative

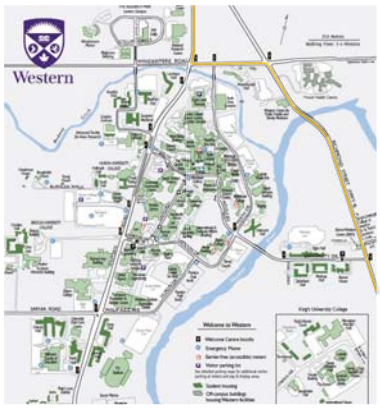
University Objectives Metrics	Lambton
Efficient connection to Downtown	Good
Legibility of route	Excellent
Impact on research and other labs	Moderate
Potential for mode shift (reduced parking demand)	Good
Potential to reduce impervious surface	Good
Impact on pedestrian safety	Moderate
Access to campus destinations	Good
Reduced trip generation for new development	Good
Intra-campus connectivity potential	Good
Potential visual impact	Poor
Impact on Western Road	Poor



Western

3. Richmond/ Windermere Alternative

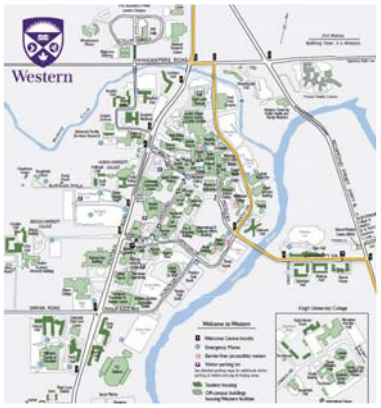
University Objectives Metrics	Richmond/ Windermere
Efficient connection to Downtown	Moderate
Legibility of route	Poor
Impact on research and other labs	Good
Potential for mode shift (reduced parking demand)	Poor
Potential to reduce impervious surface	Poor
Impact on pedestrian safety	Good
Access to campus destinations	Poor
Reduced trip generation for new development	Poor
Intra-campus connectivity potential	Poor
Potential visual impact	Good
Impact on Western Road	Excellent



Western

4. Perth Drive Alternative

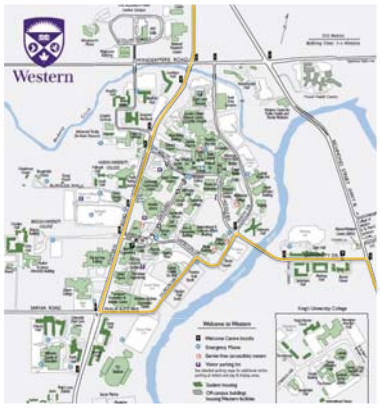
University Objectives Metrics	Perth
Efficient connection to Downtown	Poor
Legibility of route	Poor
Impact on research and other labs	Moderate
Potential for mode shift (reduced parking demand)	Poor
Potential to reduce impervious surface	Poor
Impact on pedestrian safety	Good
Access to campus destinations	Moderate
Reduced trip generation for new development	Poor
Intra-campus connectivity potential	Poor
Potential visual impact	Poor
Impact on Western Road	Excellent



Western

5. Philip Aziz Alternative

University Objectives Metrics	Philip Aziz
Efficient connection to Downtown	Poor
Legibility of route	Moderate
Impact on research and other labs	Good
Potential for mode shift (reduced parking demand)	Moderate
Potential to reduce impervious surface	Poor
Impact on pedestrian safety	Moderate
Access to campus destinations	Moderate
Reduced trip generation for new development	Moderate
Intra-campus connectivity potential	Poor
Potential visual impact	Poor
Impact on Western Road	Poor



Western

Summary Evaluation

University Objectives Metrics	Middlesex	Lambton	Richmond/ Windermere	Perth	Philip Aziz
Efficient connection to Downtown	Good	Good	Moderate	Poor	Poor
Legibility of route	Excellent	Excellent	Poor	Poor	Moderate
Impact on research and other labs	Poor	Moderate	Good	Moderate	Good
Potential for mode shift (reduced parking demand)	Good	Good	Poor	Poor	Moderate
Potential to reduce impervious surface	Moderate	Good	Poor	Poor	Poor
Impact on pedestrian safety	Poor	Moderate	Good	Good	Moderate
Access to campus destinations	Excellent	Good	Poor	Moderate	Moderate
Reduced trip generation for new development	Poor	Good	Poor	Poor	Moderate
Intra-campus connectivity potential	Good	Good	Poor	Poor	Poor
Potential visual impact	Poor	Poor	Good	Poor	Poor
Impact on Western Road	Moderate	Poor	Excellent	Excellent	Poor

Western

Preferred Alternative

The Lambton Drive alternative:

- Provides the highest level of connectivity to existing and future trip generators
- Minimizes impacts to sensitive activities
- Supports the objectives of a largely vehicle-free core campus while retaining critical access to and through the campus.
- Provides a strong opportunity for the creation of a signature transit mall through campus from the iconic gateway on Western Road
- Could lead to much needed improvements along the southern portion of Western Road

Western

Preliminary University Conditions

- Transit vehicles must share travel lanes through campus to minimize any necessary widening of streets or bridge or affect historic gates.
- Transit streets, stops and other facilities must demonstrate excellence in design and respect the pedestrian-centric priorities of the campus.
- The selection of transit vehicle should eliminate, to the extent possible, noise, vibration or electromagnetic impacts.
- The addition of BRT on campus must support the objective to reduce overall vehicle traffic on campus
- Pedestrian Safety has become a major focus at Western and key to short, medium and long term campus accessibility plans

Western

University Positions To City of London

- All LTC routes will access a transit terminal or hub located at a location to be finalized off Western Road in the vicinity of the RT route.
- LTC routes will be moved to external routes off internal campus roads with BRT
- Western will be minimizing all non- university traffic as part of long-term plan
- The Thames River bridge will be a limited access bridge with two vehicle lanes and an active transportation lane with vehicle access limited to BRT, emergency and Western designated vehicles
- Speed of buses will be limited to 35km per hour on campus and assumption of 6-8 buses per hour in each direction.
- Western will be moving all interior parking to outer areas and potentially building parking structures on campus accessing Huron-Aziz, Perth Drive and Western Road as part of vehicle reduction strategy
- Rapid Transit will have 3 stops on Campus including Richmond Gates, Talbot College vicinity and Lambton - Western Rd . – exact locations TBD. BRT will also have stops on Western Rd.
- Currently under consultation through January 2017 and final decision will be made by Board of Governors

Western

University Positions To City of London

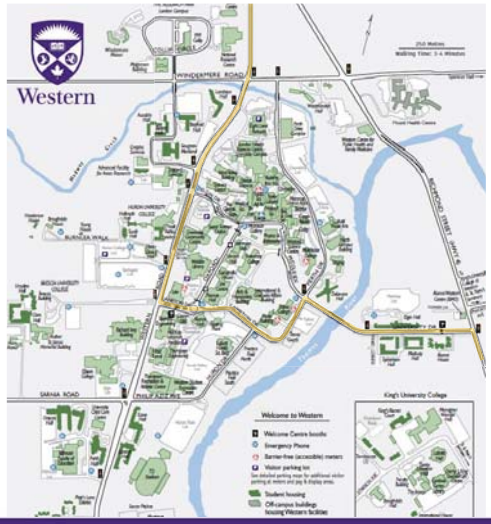
- Costs for the construction of the BRT system on campus will be undertaken by the City of London
- Agreement for the bridge reconstruction and infrastructure maintenance will need to be put in place
- City will sign agreement with Western as per our Board of Governors motion that the system will be BRT only and Western will not allow Light Rail Transit to access the campus
- Agreements on maintenance and support will need to be developed
- City and Western will work together on timing of any major traffic access changes - Western also asks that the Sarnia-Western –Aziz EA be undertaken as soon as possible to design access elements as part of the lead up to the BRT implementation.

Western

Next Steps

- Additional technical assessment
- Precedent Studies
- Consultation through December and January
- Board of Governors January 26, 2017 based on current consultation timing

Western



Western

shift
MOVING LONDON FORWARD

Our Rapid Transit Initiative

Rapid Transit Implementation Working Group
Western University Route Options
December 15, 2016

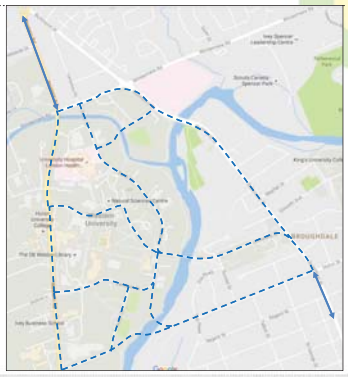
London CANADA

Rapid Transit - North Routing Alternatives

- Three broad routing alternatives were considered in Phase 2 of the EA.
- **1C** was preferred as it
  - better serves campus;
  - has higher ridership potential than 1A and 1B, and;
  - has fewer constructability constraints and impacts than 1B

Routings through Campus

- Several routing alternatives through and near campus were considered
- Many of were removed from consideration due to high cost and high impact on the environment (heritage, natural, social)
- Informed by meetings with Western University



Routings through Campus

- **Option 1** – **Middlesex Drive**: Direct rapid transit service to the centre of Campus and University Hospital using University Drive and Middlesex Drive.
- **Option 2** – **Lambton Drive**: Direct rapid transit access to the south-central part of campus using University Drive, Lambton Drive, and Western Road.
- **Option 3** - **Windermere Road**: Does not enter the campus, but circumvents it via Richmond Road and Windermere Road.

Preferred Alignment

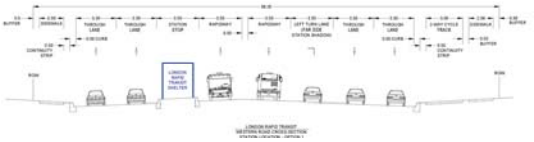
- Preferred Alignment subject to input from Western University

LTC Routing Considerations

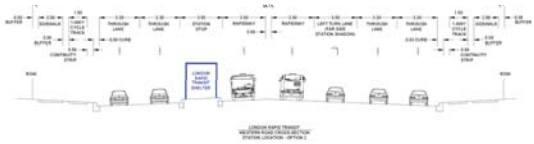
- Existing LTC Routes will need to be re-examined based on final preferred routing

Preliminary Western Road Cross-Section

Station location Option 1

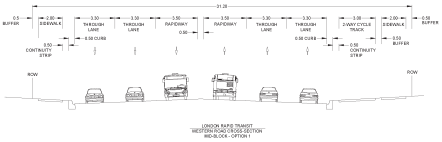


Station location Option 2

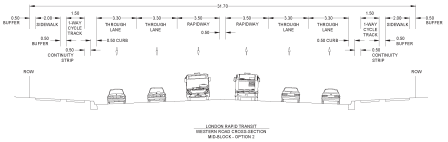


Preliminary Western Road Cross-Section

Mid-block location Option 1



Mid-block location Option 2



Summary and Next Steps

Summary

- Western University is an important generator of ridership for rapid transit
- Need to select alternative that maximizes success of Rapid Transit while achieving guiding principles and objectives of the University
- Maximizing the connectivity between the campus and rapid transit is key

Next Steps

- Work with Western University to refine assessment of alternatives
- Continue to advance design concepts for preferred alignment in order to assess environmental impacts and mitigation measures

shift
MOVING LONDON FORWARD

Our Rapid Transit Initiative

Rapid Transit Implementation Working Group
Alternative Project Delivery Options
December 15, 2016

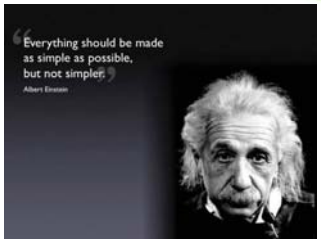
London CANADA

Outline

1. Purpose
2. Presenters Credentials
3. Overview of Alternative Project Delivery (APD) Options
4. Design Bid Build (DBB)
5. Construction Manager/ General Contractor (CM/GC)
6. Design Build (DB)
7. Design Build Finance (DBF)
8. Design Build Finance Operate and Maintain (DBFOM)
9. PPP Canada Federal P3 Screen Applied to Shift
10. Summary

1. Purpose of this Presentation

- Introduction to choices of Shift delivery methods
- Highlight key influencing factors:
  - Project size
  - Legislative and regulatory requirements
  - Tolerance for risk
  - Schedule
  - Local market knowledge
  - Desired level of involvement
- Informed decision making.



1 Purpose – Making it Real

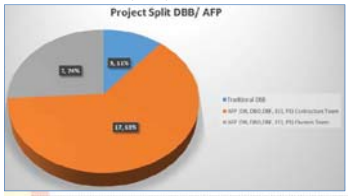
Procuring Your Cottage Dream					
	DBB	CM/GC	DB	DBF	DBFOM
Planning	You	You	You	You	You
Design	Engineer you contract	You and Contractor	Contractor You contract	Project Co you Contract with	Project Co you Contract with
Finance	Bank you Contract	Bank you Contract	Bank you Contract	Project Co you Contract with	Project Co you Contract with
Construction	Contractor You Contract	Contractor You contract	Contractor You contract	Project Co you Contract with	Project Co you Contract with
30 Year Operation	You	You	You	You	Project Co you Contract with
30 Year Maintenance	You	You	You	You	Project Co you Contract with
Ownership after 30 Years	You	You	You	You	You

1. Purpose in Context of Shift Procurement Strategy.

i. Statement of objectives
ii. Summary and analysis of:
   a) Project objectives
   b) Requirements
   c) Characteristics
   d) Risks
iii. Review of City of London and market capabilities
iv. An analysis of delivery model options and procurement methods and identification recommendations
v. A project plan showing timing and sequence
vi. Sponsors contract management requirements
vii. Opportunities for bundling or unbundling work and contracts, for example:
   a) splitting contracts where speed is a high priority, such as enabling, groundworks and main contract.
   b) Phasing procurement and utilizing different delivery model options.

2. Presenters Alternative Project Delivery (APD) Credentials

- 1992 First APD
- 640 km of linear infrastructure
- 27 projects
- 7 APD projects
- 5 Countries
- 3 Years
- 1st DB,ECI,DBFO



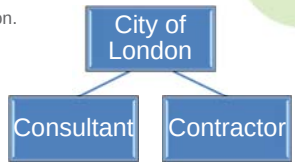
3. Overview of Alternative Project Delivery Options

- APD = innovative approach to procurement of design and construction
- APD = Role changes for all players
- APD = **a change in the overall distribution of Project Risk.**
- Questions which the City of London will have to consider:
  - How much input does the City wish to have in the design of Shift?
  - How risk averse is the City of London?
  - How is the project being financed?
  - Is the completion date of the project critical?
  - Are there performance guarantees that are critical to the City?

Source Figure 5 from PPP Canada's P3 Business Case Development Guide

4. Traditional Procurement Design Bid Build (DBB)

- Consultant draws up the plans for the entire BRT
- 100% Design Completed prior to construction.
- City of London requests build bids from contractors.
- General Contractor isn't accountable for changes due to site conditions or design modifications. and may initiate a claim for payment.
- Arms length relationship between the Consultant and the General Contractor.



4. DBB Case Study – Mississauga Transitway, Ontario

- 18km Dedicated Rapidway
- 12 stops
- Park & Ride facilities
- Two Contracts

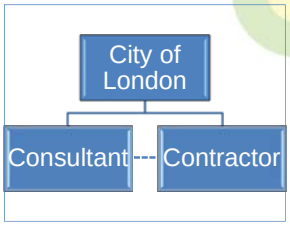
4. DBB Pros and Cons

- Universally understood approach
- City of London retains influence on design
- Competitive construction cost
- Industry experience

- Multiple points of contact for the City of London
- Engineer/Architect Adversity
- Designer cannot foresee who will build Shift
- Designer lacks Operations and Maintenance knowledge

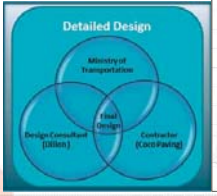
5. Construction Manager / General Contractor CM/GC Procurement

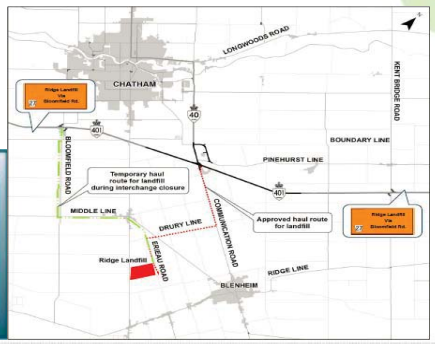
- CM/GC is a two-phase contract
- Construction Manager (CM) early in the design phase.
- Contractor bids on the work.
- Construction Manager becomes General Contractor if bid accepted.
- Contract is tendered as a DBB contract if bid not accepted.
- CM/GC is suited for projects with high complexity.



5. CM/GC Case Study - Highway 401/40 Interchange Reconfiguration & Highway 401 Eastbound Lane Reconstruction

- More informed EA
- Constructability expertise reduced closures by two months





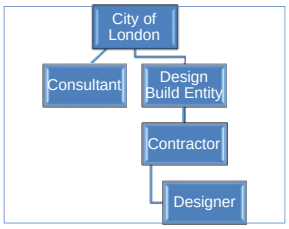
5. CM/GC Pros and Cons

- Single point of contact for City of London
- Earlier Construction Knowledge
- Integrates Design, Construction and Operations & Maintenance
- May reduce delivery time

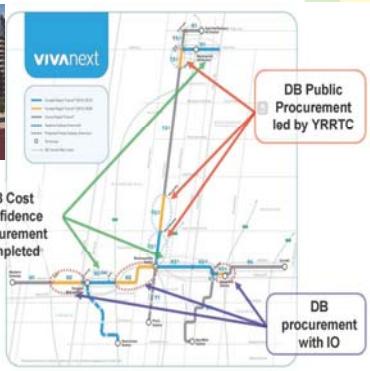
- City of London has far less influence once award made.
- Little Industry Experience
- City of London retains oversight of Operations & Maintenance.

6. Design-Build (DB) Procurement

- Single source entity responsible for the Design, Procurement and Construction for their project.
  - It is not the contract, but the approach. The contract itself can be in a myriad of forms from Time and Material to Lump Sum with performance guarantees.
- Two step procurement
- **Design Build Expression of Interest (DB-EOI)**; Short-list Proponents for Request For Proposals (RFP stage).
- **RFP**; Best Value award (Price ÷ Technical Score).



6. DB Case Study – vivaNext BRT Rapidway, Ontario



- Bus Rapid Transit (BRT)
- 75 km of route
- York Region, north of the City of Toronto
- Part of Greater Toronto Area
  - Population 1.1 million
  - Employment 550,000
- Budget about $1.4Bn but constructed in stages

6. DB Pros and Cons

- Single point of contact
- Risk transfer for planning, approvals, utilities, design and construction.
- May reduce delivery time
- Competition over design and construction
- Construction can commence before design is 100% complete

- Less City of London influence once award made
- Less industry experience
- Lacks Operations & Maintenance knowledge.

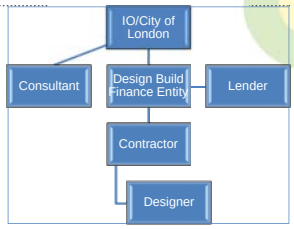
6. Design-Build (DB) Vs DBB or CM@Risk

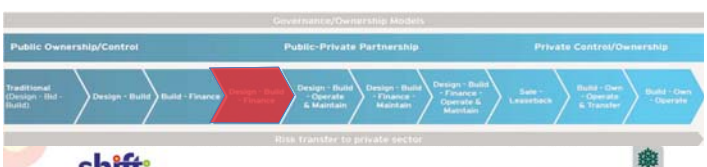
Metric	Design-Build vs. Design-Bid-Build	Design-Build vs. CM@R
Unit Cost	6.1% lower	4.5% lower
Construction Speed	12% faster	7% faster
Delivery Speed	33.5 % faster	23.5% faster
Cost Growth	5.2% less	12.6% less
Schedule Growth	11.4% less	2.2% less

Source: Construction Industry Institute (CII)/Penn State research comprising 351 projects ranging from 5K to 2.5M square feet. The study includes varied project types and sectors.

7. Design Build Finance (DBF) Procurement

- Single source entity responsible for Design, Procurement, Finance and Construction.
- Two step procurement.
- **DBF-RFQ**; Short-list Proponents for RFP stage.
- **RFP**; Best Value award (Price ÷ Technical Score.
- Greater allocation of risk to Design Build Finance





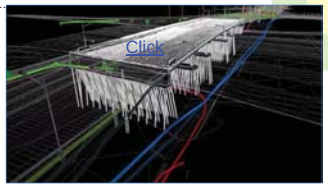
7. DBF Pros and Cons

- Single point of contact
- Risk transfer for planning, approvals, utilities, design and construction.
- May reduce delivery time
- Competition over design and construction
- Construction can commence before design is 100% complete
- Short-term gap financing provided by the design-builder allows the City of London to expedite project implementation.

- Less City of London influence once award made
- Less industry experience
- Lacks Operations & Maintenance knowledge.

7. DBF Case Study – vivaNext H2W & H2E BRT Rapidway, Ontario

- Maximized 3D Virtual Design
- Online collaboration
- Enhanced Design
- Early construction starts
- Flexibility in scheduling



8. Design Build Finance Operate Maintain (DBFOM, PPP or P3)

- There is no clear and consistent definition of what constitutes a P3
- The Organisation for Economic Co-operation and Development defines a P3 as;
  - *"An agreement between the government and one or more private partners according to which the private partners deliver the service in such a manner that the service delivery objectives of the government are aligned with the profit objectives of the private partners and where the effectiveness of the alignment depends on a sufficient transfer of risk to the private partners."*
- The Canadian Council for Public-Private Partnerships (CCPPP), defines a P3 as:
  - *"A cooperative venture between the public and private sectors, built on the expertise of each partner that best meets clearly defined public needs through the appropriate allocation of resources, risks, and rewards."*

8. Design Build Finance Operate Maintain (DBFOM, PPP or P3)

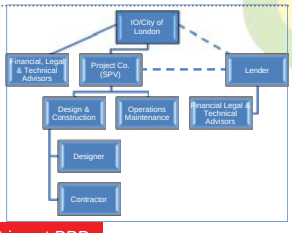
- There are common attributes to both definitions;

"an agreement between the government and one or more private partners according to which the private partners deliver the service in such a manner that the service delivery objectives of the government are aligned with the profit objectives of the private partners and where the effectiveness of the alignment depends on a ***sufficient transfer of risk to the private partners****."*

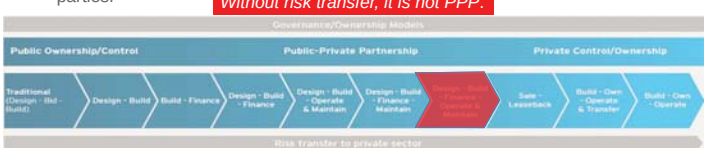
"A cooperative venture between the public and private sectors, built on the expertise of each partner that best meets clearly defined public needs through the ***appropriate allocation of*** *resources,* ***risks****, and rewards."*

8. Design Build Finance Operate Maintain (DBFOM, PPP or P3)

- PPPs are procured by the public sector
- Public and private sector expertise optimized
- Leverage private finance, construction, design, maintenance and operating expertise
- consider the whole life costs
- Payments on delivery of services
- Allocating risks and rewards to both parties.



Without risk transfer, it is not PPP.

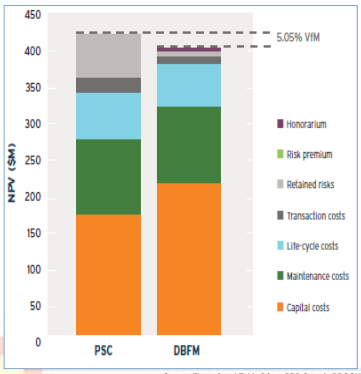


8. PPP Pros and Cons

- Faster delivery of Shift infrastructure
- Private sector expertise, skills, and innovation harnessed
- Enables the City of London to focus on its core business
- Transfers risk to the party best able to manage that risk
- Increases effectiveness of project management
- Minimises capital investment and risk
- Ensuring regular maintenance
- Improved service delivery
- Competition over Design , Construction and Operations & Maintenance
- Fixes Owner O&M Costs

- Complex project arrangements
- Need for expertise at City of London to manage the procurement
- Coordination with multiple agencies complicates/ obstructs use of PPP
- Unrealistic end user expectations can create problems post-award

8. Design Build Operate Finance (DBFOM, PPP or P3) Vs DBB



- Single entity responsibility
- Over $25M of value for Shift
- More certainty of price and schedule
- Risks appropriately allocated

Risk	Typical Allocation of Risk	
	PSC (Traditional model)	P3 (Shadow bid) (DBFOM)
Planning, policy and strategic risk	Public sector	Public sector
Land acquisition cost risk	Public sector	Public sector
Procurement risk	Public sector	Public sector
Permitting and approval risk	Public sector	Private sector
Environmental risk	Private sector (except existing soil contamination risk)	Private sector (except existing soil contamination risk)
Existing soil contamination risk	Public sector	Public sector
Design risk	Public sector	Private sector
Construction risk	Shared	Private sector
Operation, maintenance and lifecycle risk	Public sector	Private sector
Financing risk	N.A.	Private sector
Revenue risk (if applicable)	Public sector	Public sector or private sector, depending on the type of infrastructure and contractual arrangement

Source Figure 2 and Table 5 from PPP Canada ***PROCUREMENT OPTIONS ANALYSIS METHODOLOGY:*** *The Guide for Federal Departments and Agencies*

8. DBFO Case Study - A4/A5 Dungannon Ballygawley, NI

8. Ground Improvement Design and Construction

8. May 2010 Bank Holiday Weekend

8. Project in the News for Wrong Reason!

The Partnering Approach;

- Adopt no-blame culture
- Monitor movement
- Establish most likely cause
- Develop solutions
- Seek approval
- Undertake full scale trial

What was required in 6 Months;

- Additional land acquisition
- Design recertification
- Temporary Works
- Independent certification.
- Dealing with 150,000m3 of unsuitable material arising out of the bog.

8. Road Opened 17th November 2010 – one month EARLY

9. PPP Canada Federal P3 Screen Applied to Shift

	Criterion	Weighting	Shift Score
1	Investment Size	10	5
2	Private Sector Expertise	10	5
3	Market Precedents	5	5
4	Type Of Infrastructure Site	5	4
5	Scope For Private Sector Innovation Gains	10	5
6	Security Requirements	5	5
7	Potential For Contract Integration	10	5
8	Asset Life	5	5
9	Number Of Asset Classes	10	3
10	Performance-Based Output Specifications (Construction)	5	5
11	Stability Of Operational And Maintenance Requirements	5	5
12	Performance Specifications And Indicators (Operation)	5	5
13	Rehabilitation Costs	10	5
14	Revenue Generation	5	2
		Weighted Score	92

- Shift scores max.(5) in 11 out of 14 criterion.
- P3 option should be included in the Procurement Options Analysis for Shift.

Decision Range for Evaluating Assets for P3 Viability		
1	50	The P3 option should not be retained for further analysis.
51	75	The asset presents a mix of favourable and unfavourable indicators for P3 procurement. Please consult PPP Canada for assistance in screening your investment.
76	100	The P3 option should be included in the Procurement Options Analysis (POA) to be developed for the asset.

10. Next Steps

Value For Money Assessment

- Key decision making and communication tools
- Used to as a selection tool for a particular project delivery model at the project feasibility stage
- Updated through procurement process

Risk Assessment

- Held during project feasibility stage to identify key project risks
- Applies to both P3 and traditional procurement models
- Probability of risk causing additional costs is determined using structured approach

10. Summary

Questions & Answers

Procuring Your Cottage Dream					
	DBB	CM/GC	DB	DBF	DBFOM
Planning	You	You	You	You	You
Design	Engineer you contract	You and Contractor	Contractor You contract	Project Co you Contract with	Project Co you Contract with
Finance	Bank you Contract	Bank you Contract	Bank you Contract	Project Co you Contract with	Project Co you Contract with
Construction	Contractor You Contract	Contractor You contract	Contractor You contract	Project Co you Contract with	Project Co you Contract with
30 Year Operation	You	You	You	You	Project Co you Contract with
30 Year Maintenance	You	You	You	You	Project Co you Contract with
Ownership after 30 Years	You	You	You	You	You

shift
MOVING LONDON FORWARD

Our Rapid Transit Initiative

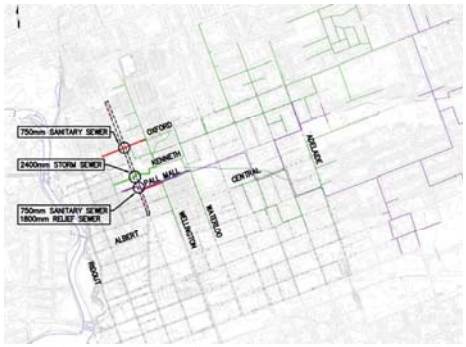
Rapid Transit Implementation Working Group
Richmond Street Tunnel –Underground Utilities Rerouting
December 15, 2016

London CANADA

Richmond Street Tunnel

- Grade separation of Richmond Street with CP Rail is key component of rapid transit initiative
- Extends from Central Avenue to St. James Street

Major Impacted Utilities



Options

- Do Nothing – Deepen Transit Tunnel
- Siphons under Transit Tunnel
- Relocate Major Utilities around Transit Tunnel

Potential Relocation Option