SUPPORTING STAKEHOLDER VALUES

Integration & Coordination of the City of Ottawa Southwest Transitway Extension & Algonquin College CCTBS Projects

Presentation to 2009 CSVA Conference

Tuesday November 24th 2009

***Presented by*:**

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City of Ottawa

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McCormick Rankin Corporation

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Setting the Stage

- Genesis of Southwest Transitway Extension
- Centrepointe Town Centre Redevelopment
- Algonquin College Expansion
- Baseline Station Functional Design
- Coordination of Projects

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Location of Projects

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Southwest Transitway Extension - Project Genesis

- 1997 MOE Approved the Southwest Transitway Environmental Assessment:
  - 9.5 km Baseline Road to Strandherd Drive
  - Incorporated a grade-separated Baseline Station
- 2003 Transportation Master Plan:
  - Identified the North-South Corridor LRT as 1st Priority Project
- Dec. 2006 Decision Not to Proceed with North-South LRT Project

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2007 - Moving Forward From N-S LRT

- June - Findings of Mayor's Task Force on Transportation:
  - ☞ Immediate/Short/Medium/Long-Term Priorities
- July - Strategic Directions of Council :
  - ☞ Complete the Transitway by 2015
  - ☞ Implement Rapid Transit connections to serve South and East as priorities
- August - Council Considered Variety of 'Near-Term' Transit Investments
  - ☞ Defer decision until completion of TMP update

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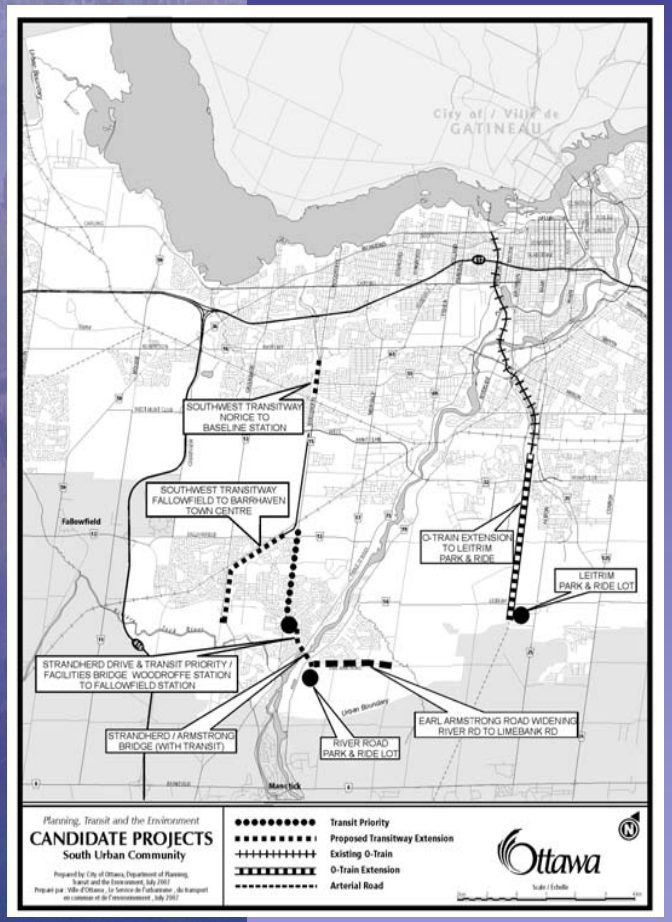
Near-Term Transit Investments

- Projects had to be Council-endorsed through Official Plan, Transportation Master Plan or other documents
- Projects had to be strategic connections to build-out the network
- Synergize and compliment Mayor's Task Force findings
- Support approved strategic directions of Council
- Had to have EA complete and design work complete or underway
- Majority of construction to be complete by 2012

Near-Term Transit Investments



- Southwest Transitway Extension – Baseline to Norice:
  - One of a variety of projects to advance rapid transit service to SUC
  - Address traffic delays to north-bound buses trying to access the Baseline Station
  - Congestion at the Meadowlands / Tallwood intersection affecting the daily transit commute
- Woodroffe Avenue Pedestrian Overpass To Algonquin College

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2008 Transportation Master Plan

- Council approved a long-range Primary Rapid Transit Network:
  - Centered on LRT tunnel downtown & Conversion of Transitway to LRT from Baseline to Blair Stations
  - Conversion of O Train to electric LRT and extension into Riverside South
  - Extensions to existing Bus Transitways to Kanata, Barrhaven, and Orleans
  - Supplementary corridors
  - Recommended Phasing Strategy
- $4.6B, Implementation by 2031
- Subject to 1/3 – 1/3 – 1/3 Funding Formula

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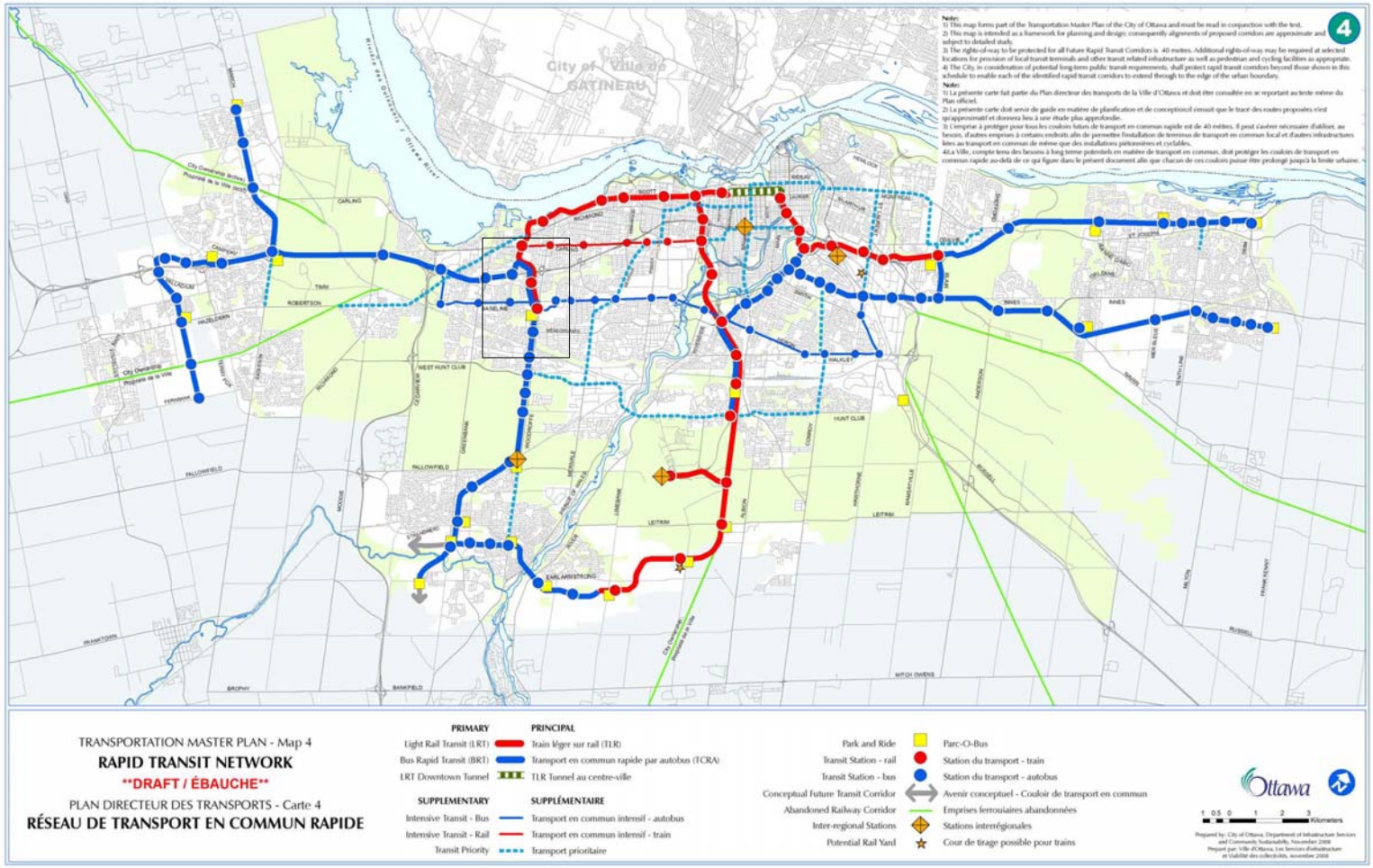
Approved Transportation Master Plan



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Centrepointe Town Centre Development Plan

- Strategy to integrate commercial, residential and office uses through intensification and innovation centered on grade-separated rapid transit station
- Incorporates Algonquin College expansion as first stage - catalyst for other projects

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Algonquin College Expansion

- Largest College outside of GTA
  - Currently serves 16,000 full-time & 39,000 part-time students
  - Delivers 140 programs, including 23 apprenticeship programs
- $136M, Two-Phase Expansion
  - To respond to shortage of skilled construction trade and health care workers
  - 2,200 new students
  - Phase I - construction of Centre for Construction Trades and Building Sciences (CCTBS)
  - Phase II - construction of Health Sciences building and Strategic Expansion

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Algonquin College Expansion

- Centre for Construction Trades and Building Sciences (CCTBS)
  - $69M Project
  - 160,000 ft2
  - 600 Students
  - Federal & Provincial Funding
  - Sept 2011 Opening
- Renamed Algonquin Centre for Construction Excellence (ACCE) in Fall 2009

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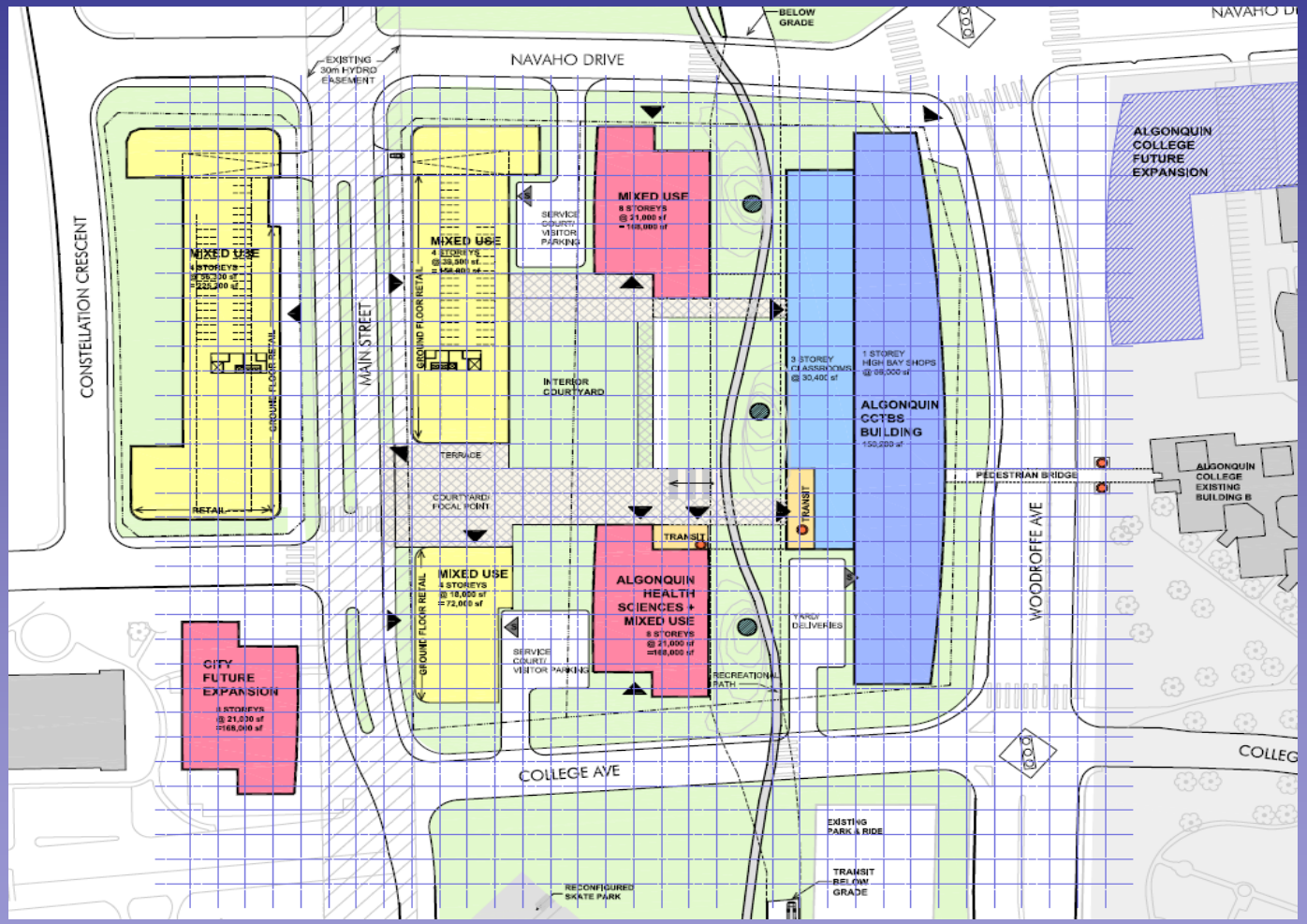
Algonquin College Expansion



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Algonquin College Expansion

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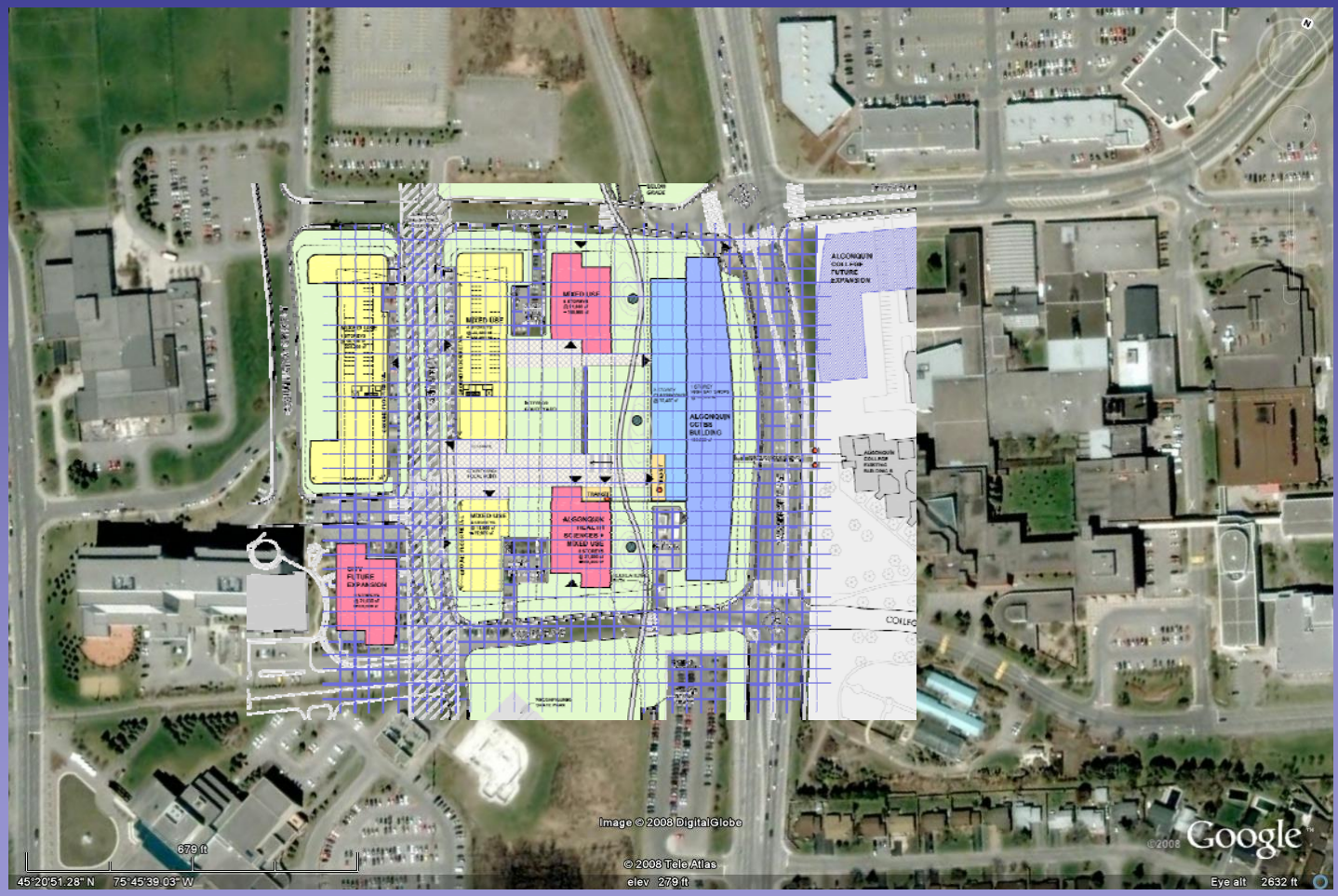

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Baseline Station Functional Design & Land Preservation Study

- 4-Month Study
- Commenced in August 2008
- Co-ordinate with Other On-going Projects :
  - ☞ Centrepointe Town Centre Development Plan
  - ☞ Algonquin College Expansion
  - ☞ Transportation Master Plan Update
  - ☞ Baseline Station Operational Review
  - ☞ New City of Ottawa Archives Building

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Baseline Station Functional Design & Land Preservation Study

- Develop a functional Design for Baseline Station that would:
  - ☞ Define the redevelopment of the existing station as a multi-modal BRT/LRT transfer facility
  - ☞ Integrate with adjacent mixed-use developments for access, increased use, and shared infrastructure
  - ☞ Be incorporated into the proposed Algonquin College expansion
  - ☞ Set out a phased approach towards its implementation

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Baseline Station Functional Design & Land Preservation Study

- Consider short-, medium-, & long-term station configurations, including:
  - Transit operational requirements
  - LRT, BRT & local service platform locations
  - Passenger transfer requirements
  - Pedestrian accesses
  - Grade separations for transit, traffic or pedestrian needs
  - Ancillary station facilities

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Baseline Station as an LRT/BRT Terminus/Transfer Facility

- Sufficiently far enough from Downtown to warrant time penalty related to transfer and make volumes reasonable
- Service over 9,000 passengers in the peak-hour by 2031
  - ☞ Approx. 4,000 modal transfers
- Vertical passenger movements are most efficient
- Require sufficient land to accommodate and optimize transit vehicle movements (bus and rail)

Baseline as an LRT Terminus

- Required Elements:
  - ☞ Rail cross-over to facilitate change of direction
  - ☞ Tail tracks
  - ☞ Sufficient train storage space for morning start-up service needs
- Centre platform preferred
- 180 m platform length governed by future operations

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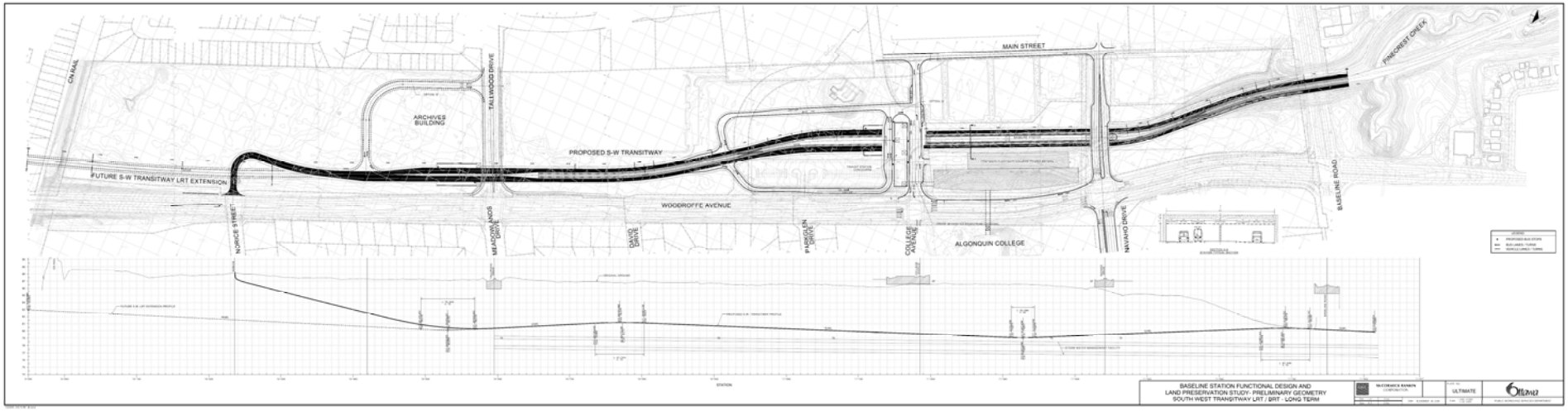
Recommended Functional Plan
Southwest Transitway Extension



- 1.6 km grade separated corridor
- 281 m covered-tunnel incorporating LRT & BRT
- 3 roadway overpasses
- $ 185M Estimated Cost

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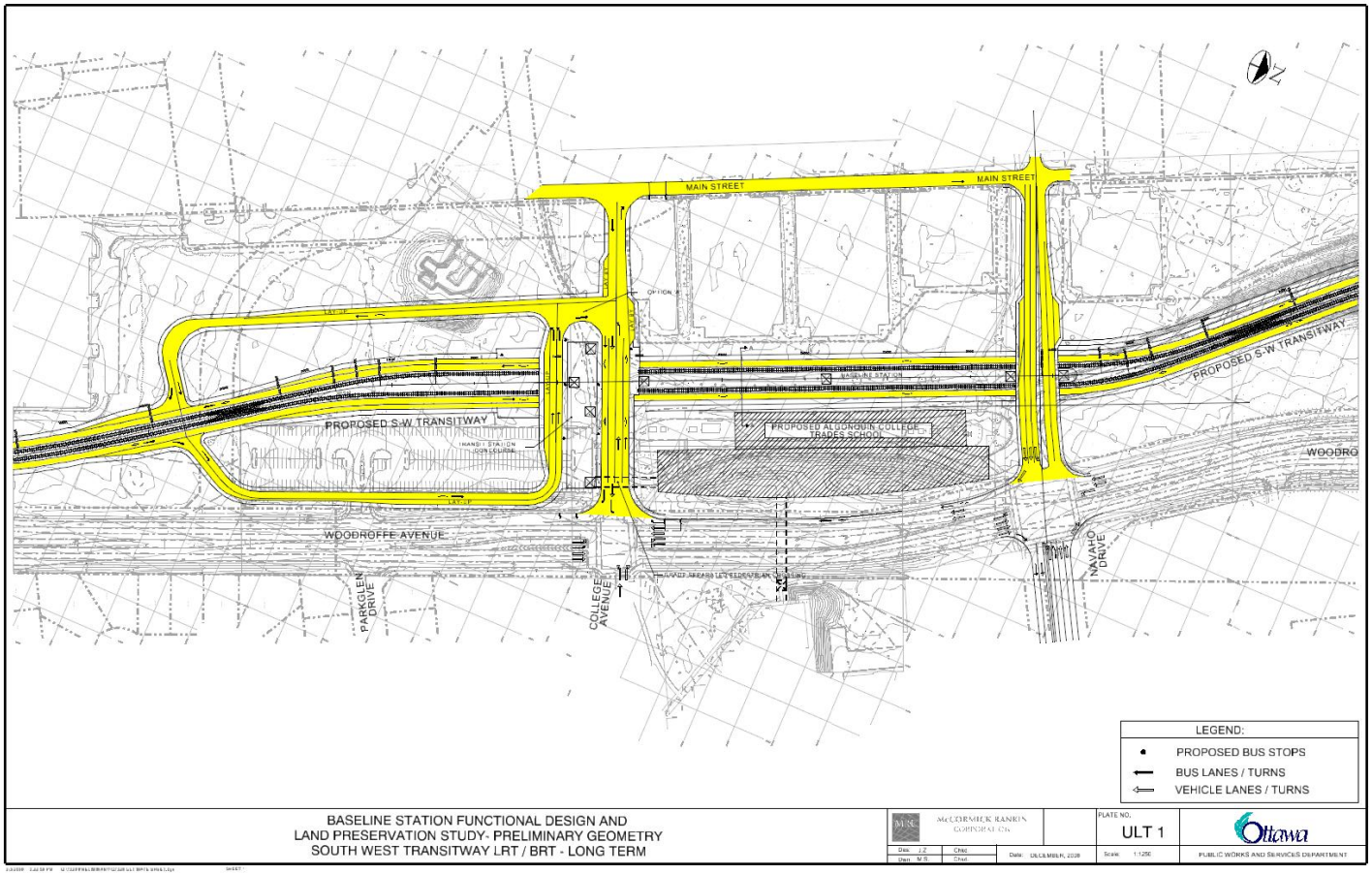
Recommended Functional Plan
Baseline Transit Terminal Station



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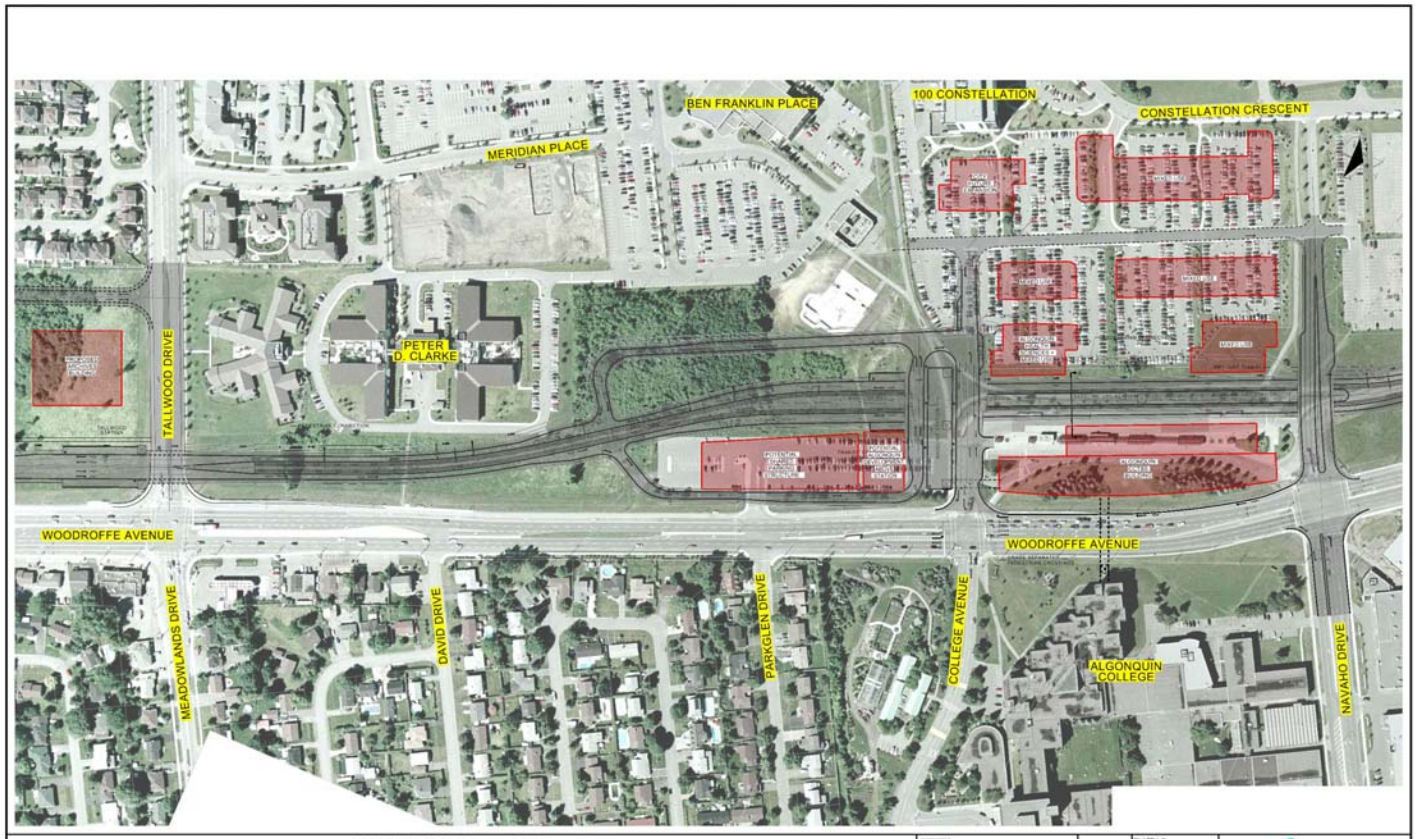
Recommended Functional Plan
Land Use Integration



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Implementation Approach

- Three Phases
- Phase I – Relocation of Existing Station
  - ☞ Facilitates CCTBS building construction
- Phase II – Interim
  - ☞ Grade-separated BRT facility
- Phase III – Long-Term
  - ☞ LRT/BRT transfer facility
  - ☞ Governs configuration of Phases I & II

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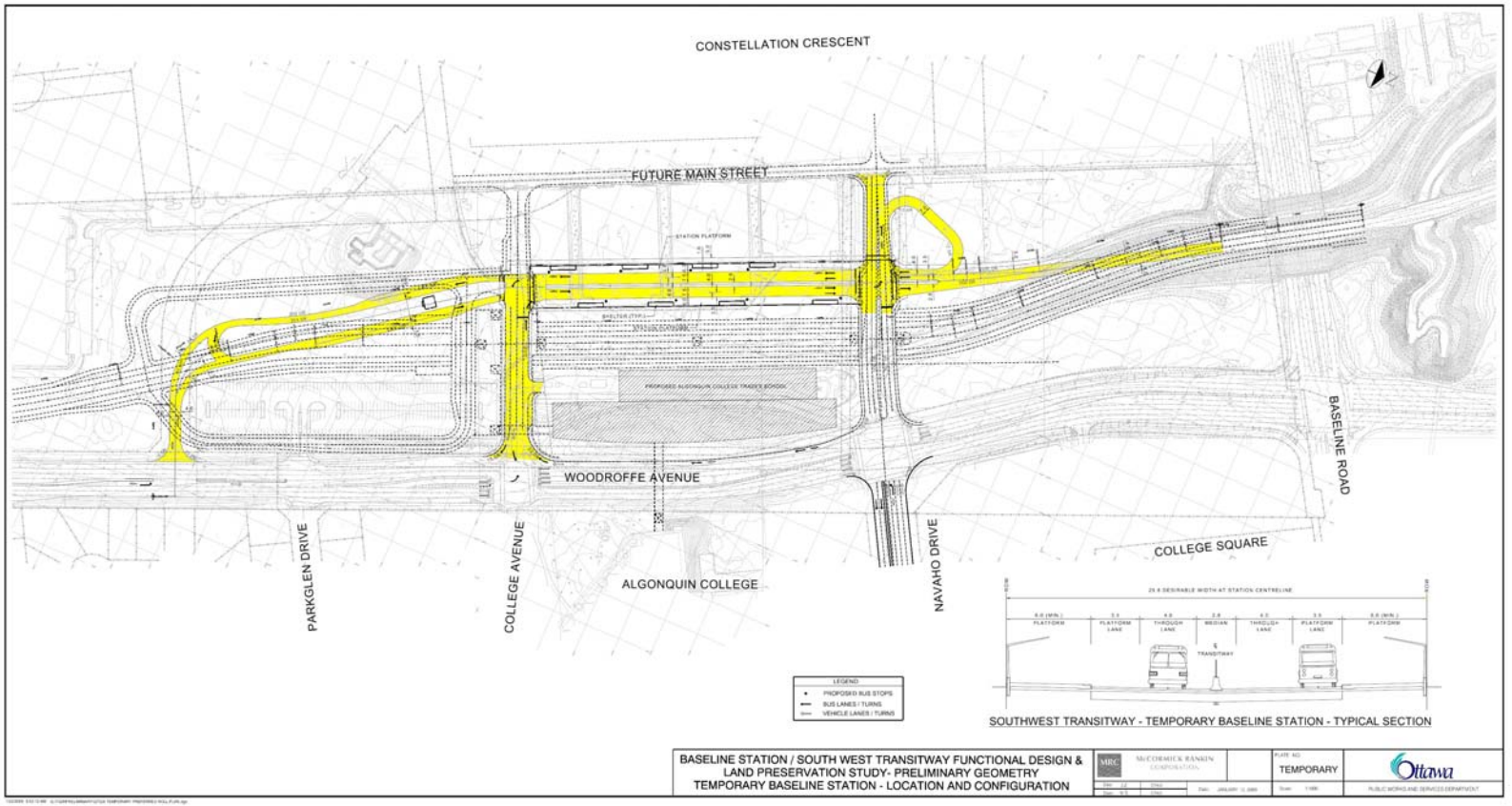
Phase I – Relocate Existing Station



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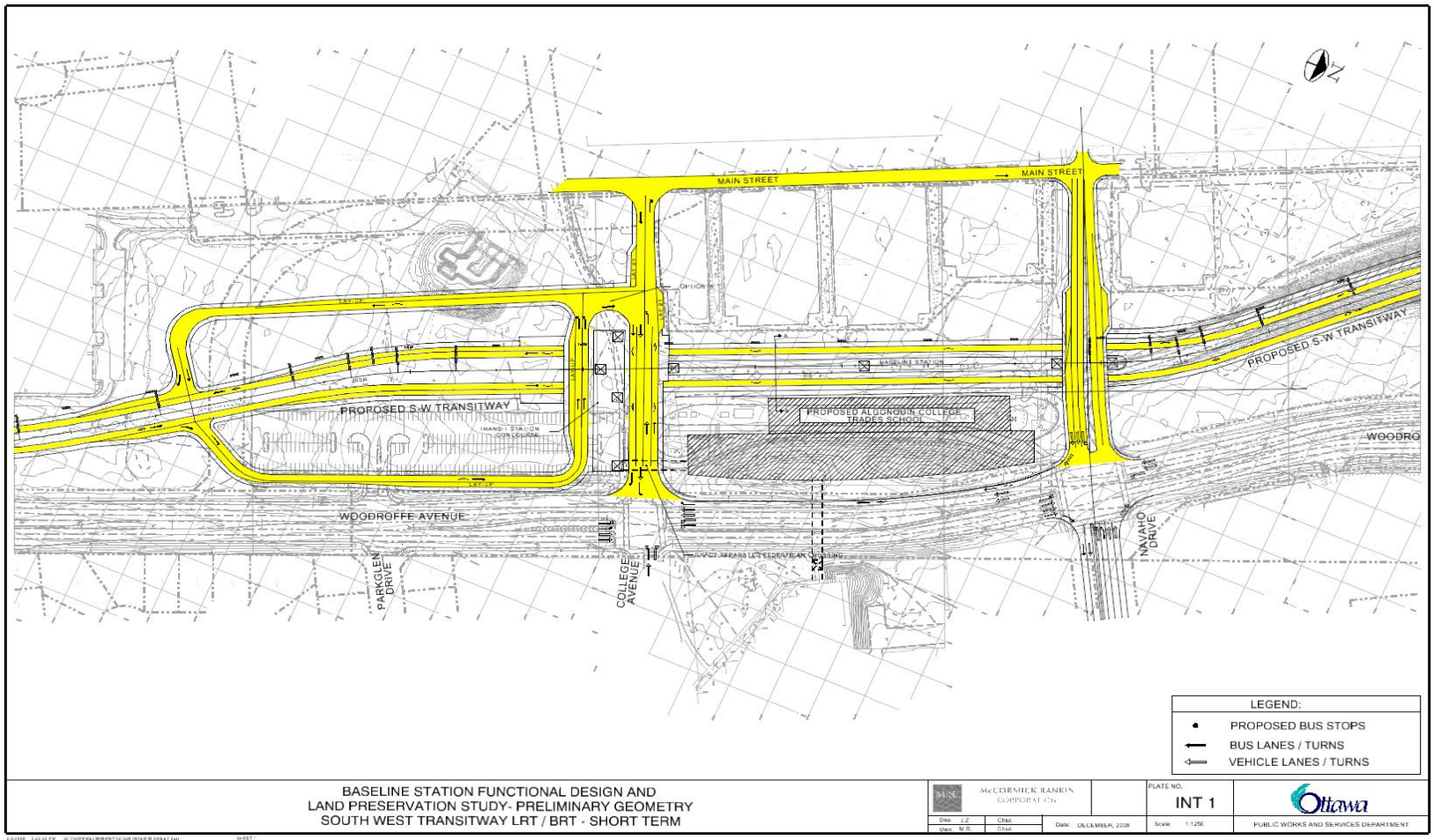
Phase II - Interim



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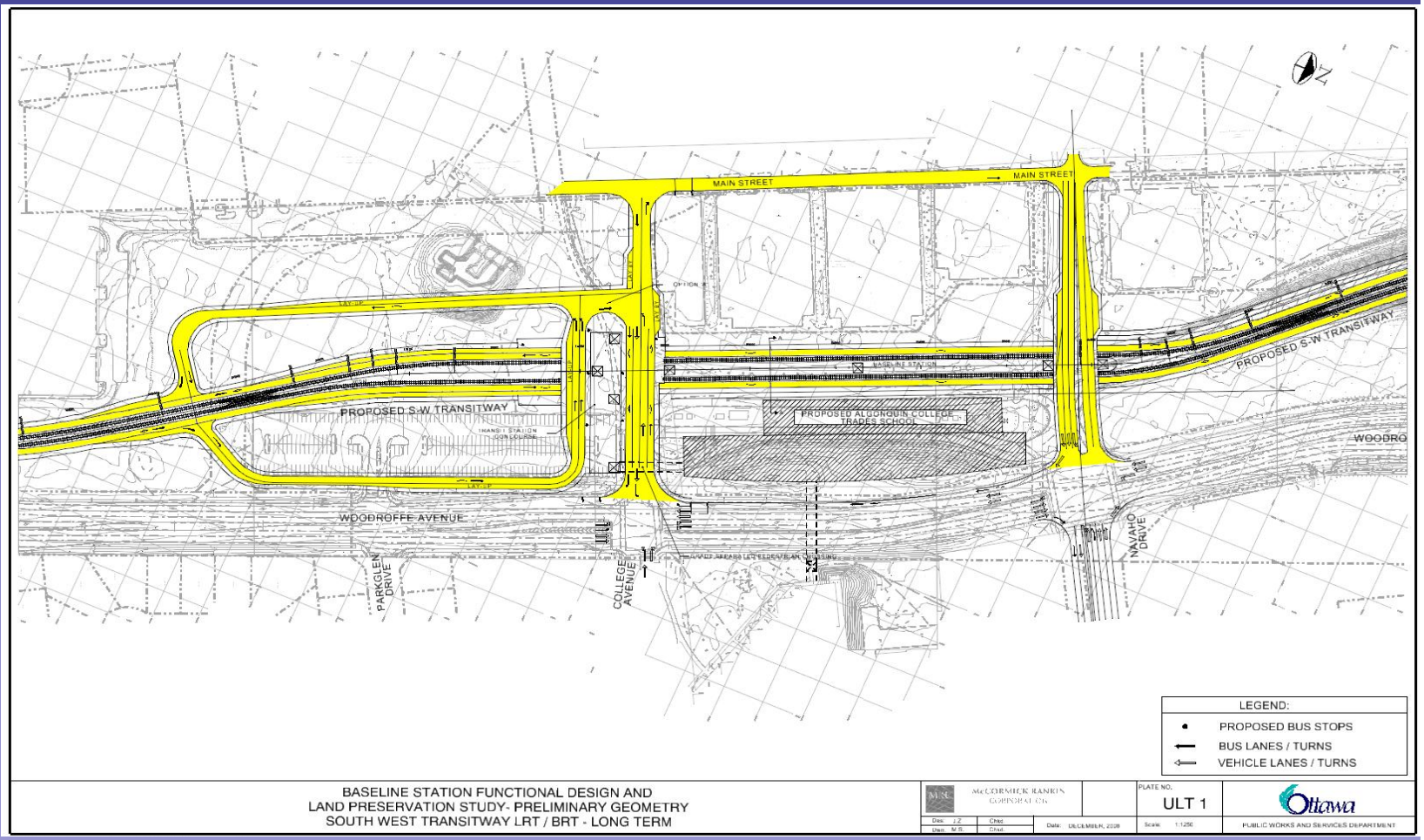
Phase III – Long Term



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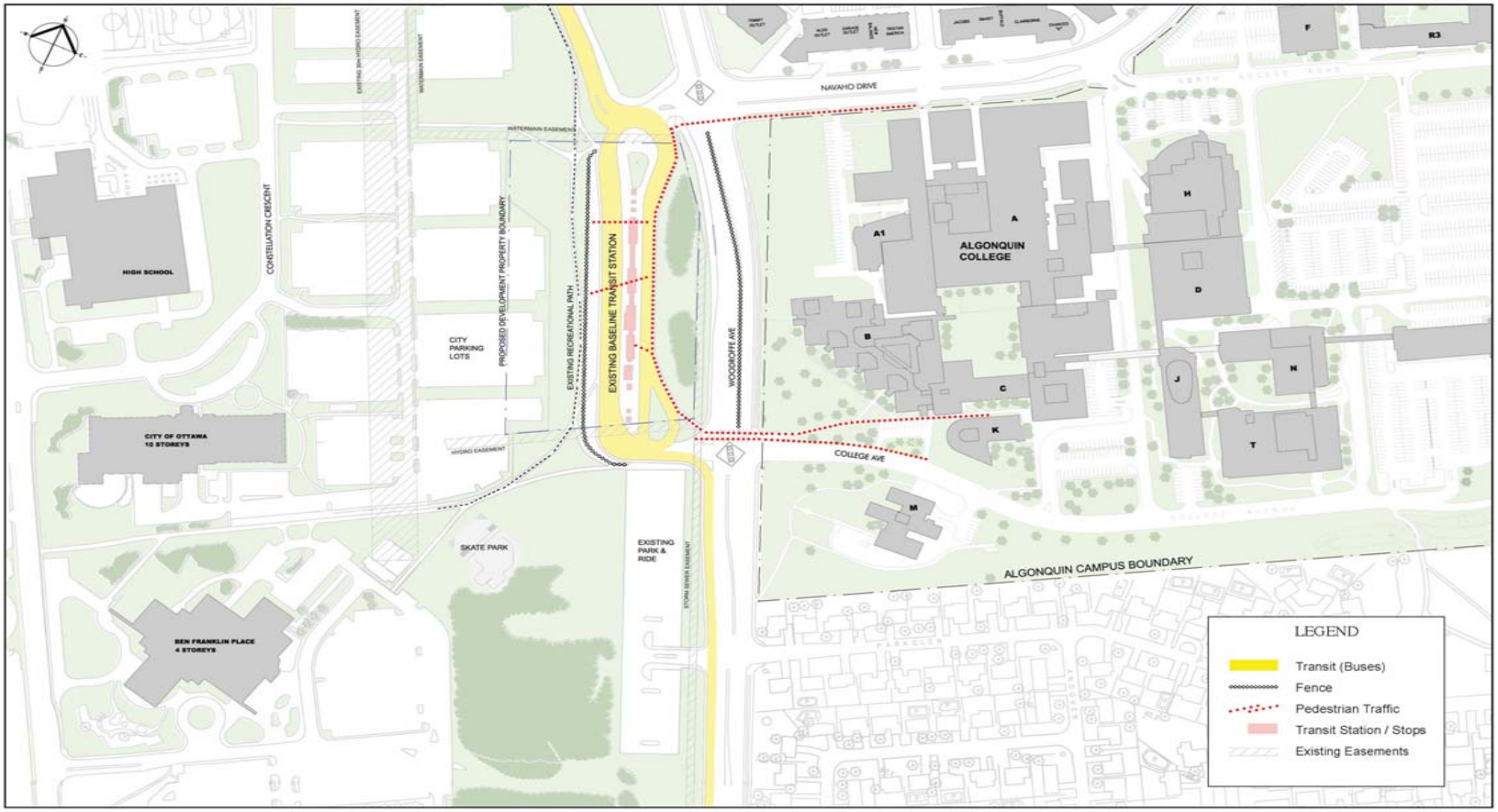
Algonquin College
Coordinated Implementation Strategy



CENTREPOINTE EXPANSION STUDY
PHASE 1 - STAGE 1A: OCTOBER 2008 to MARCH 2009

1A

October 28th, 2008

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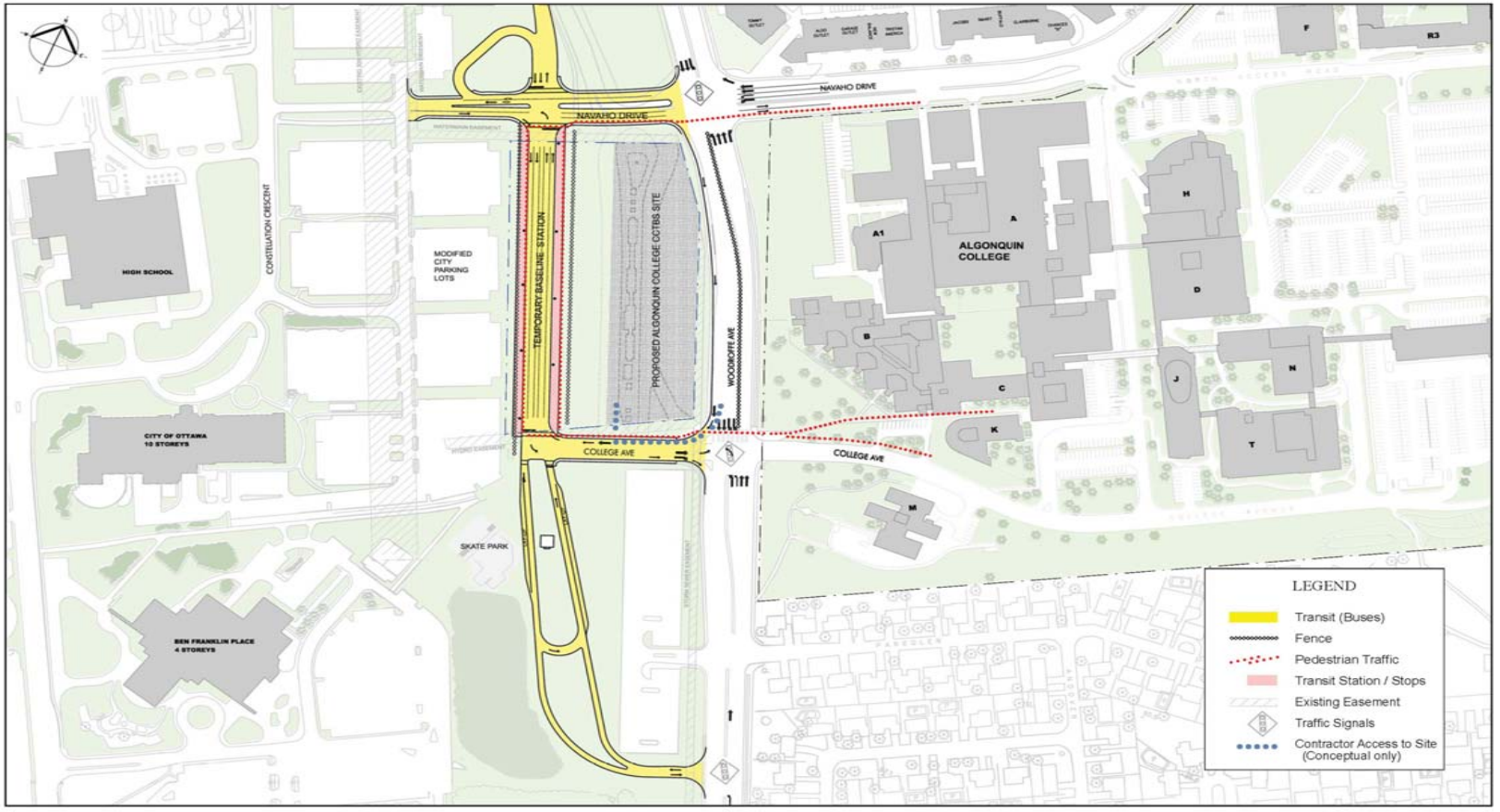
Coordinated Implementation Strategy



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CENTREPOINTE EXPANSION STUDY
PHASE 1 - STAGE 1B: APRIL 2009 to SEPTEMBER 2009

1B

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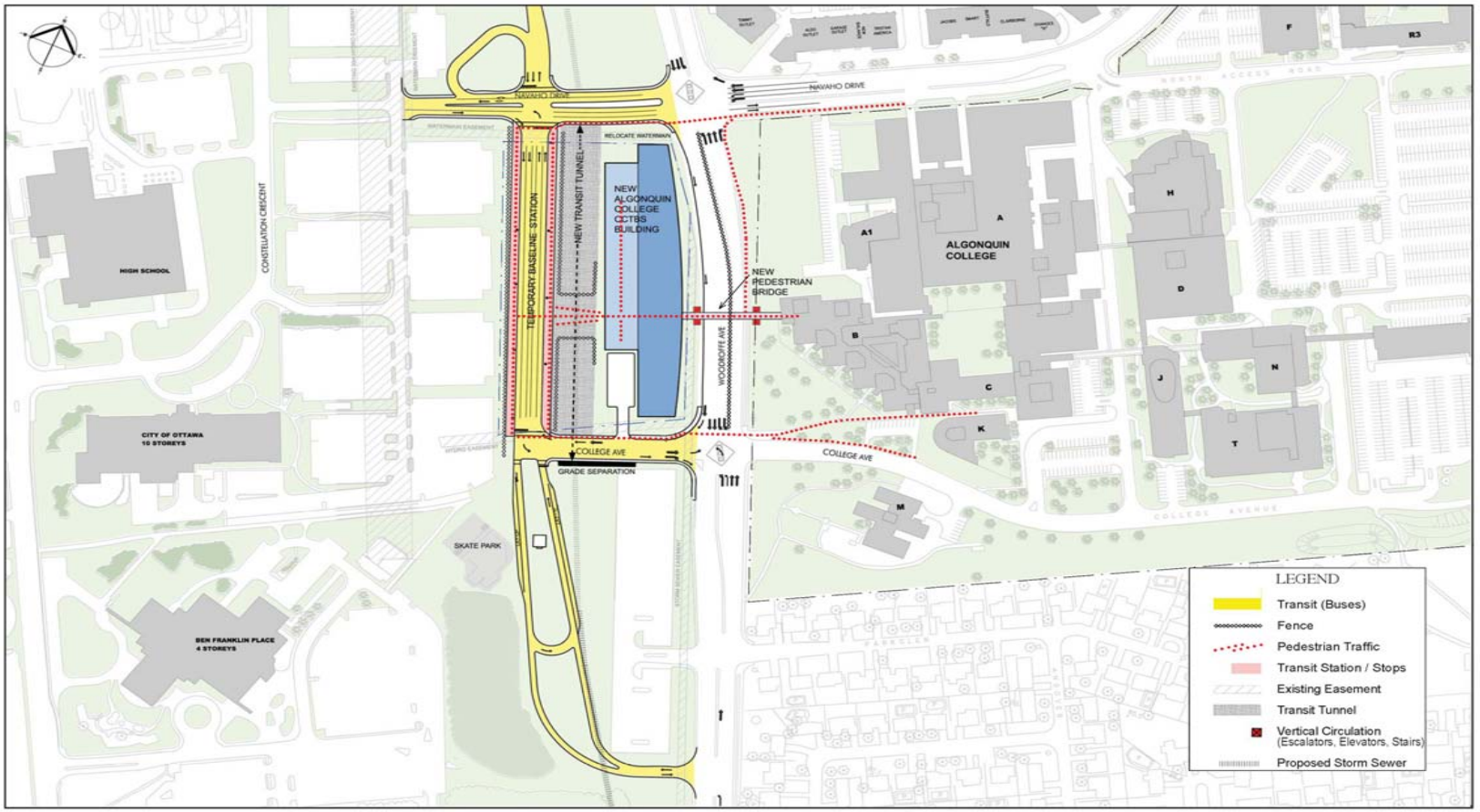
Coordinated Implementation Strategy



CENTREPOINTE EXPANSION STUDY
PHASE 1 - STAGE 1C: AUGUST 2009 to AUGUST 2011

1C

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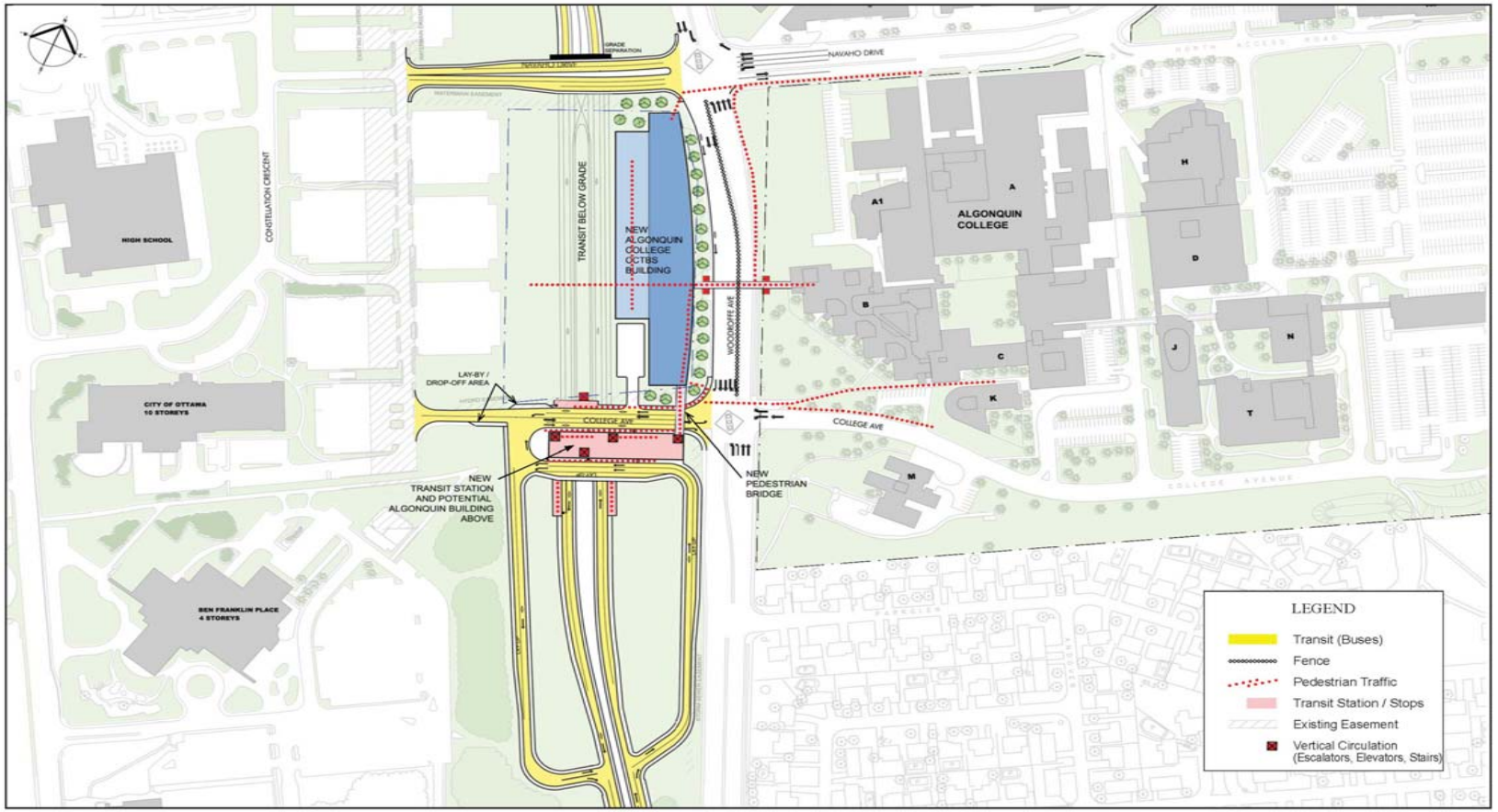
Coordinated Implementation Strategy



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CENTREPOINTE EXPANSION STUDY
PHASE 1 - STAGE 2A: AUGUST 2011 to 2013

2A

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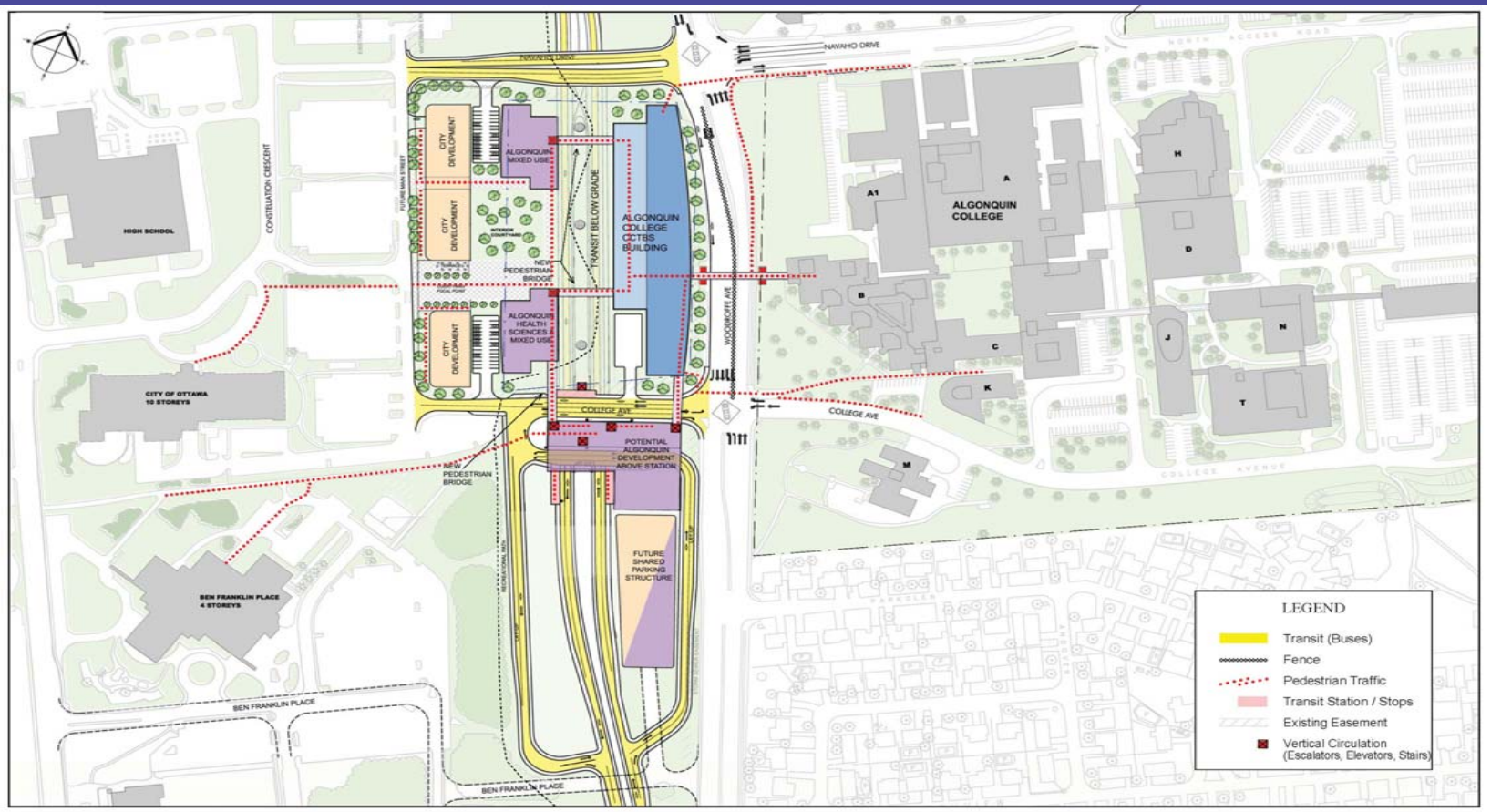
Coordinated Implementation Strategy



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CENTREPOINTE EXPANSION STUDY
PHASE 1 - STAGE 2B: AUGUST 2011 to 2015

2B

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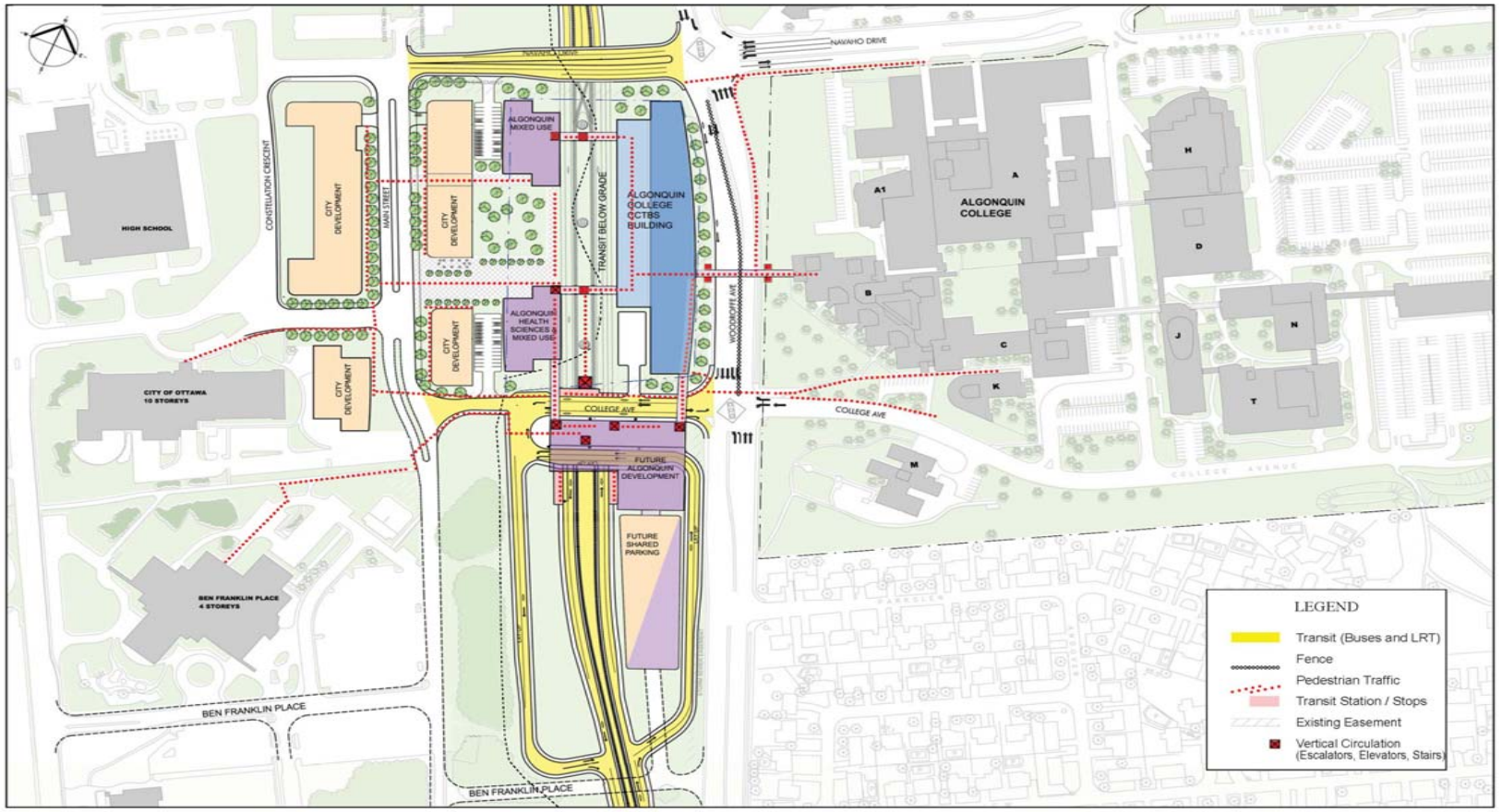
Coordinated Implementation Strategy



CENTREPOINTE EXPANSION STUDY
PHASE 1 - STAGE 3: 2016 to ?

3

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Ottawa City Council

- November 2007 Support:
  - Making City-owned lands available
  - Initiating design of pedestrian bridge
  - Begin negotiation of joint-development agreement
  - Conditional on all parties securing funding
- November 2008 Approval:
  - Southwest Transitway Extension functional design
  - Transfer of property to Algonquin College
  - Funding for initial Transit Project*
  - Funding for Pedestrian Bridge

*Minimum work required to coordinate with Algonquin CCTBS

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Southwest Transitway Extension
VE/Constructability Workshop

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Southwest Transitway Extension VE/Constructability Workshop

Purpose:

"To consider alternative implementation strategies that address both the City and Algonquin College's short and long term goals, and allows for an effective contracting strategy that preserves the self interest of both agencies"

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Southwest Transitway Extension VE/Constructability Workshop

Participants:

- City of Ottawa
  - Infrastructure Services
  - Transit Services (OC Transpo)
  - Drinking Water Services
  - Property/Real Estate
- Algonquin College
  - MHPM
  - GRC Architects
  - Morrison Hershfield
- Tomlinson Construction
- Lloyd Ferguson (independent construction advisor)
- McCormick Rankin
  - Transit & Structure Design
- JL Richards
  - Architectural
  - Mechanical & Electrical
- MMM Group
  - Structural
  - VE Specialist
- EcoPlans
- Golder Associates
- Faithful & Gould

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Southwest Transitway Extension VE/Constructability Workshop

Opportunities & Benefits:

- All Stakeholders '*at the same table*'
- City & Algonquin Design Teams
- Independent Contractor/Heavy Construction Advisors
- Provide Clarity of all Relevant Technical Issues
- Focus on Constructability & Staging

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"Rules of the Game":

- Don't be Constrained by Existing Designs
- All Ideas 'On the Table'
- Respect the Interests of All Stakeholders

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Southwest Transitway Extension VE/Constructability Workshop

Workshop Agenda:

- Day 1
  - Welcome & Introductions
  - Project overview and Designer Presentations
  - Risk Register / Performance Criteria / FAST Diagram
  - Creative Brainstorming Begins
- Day 2
  - Creative Brainstorming continued
  - Develop Performance Criteria & Carry out Analyses
- Day 3
  - Develop Selected Ideas into VE Proposals
  - Summarize Results & Prepare Presentations
  - Presentation to City & Algonquin Project Champions

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Southwest Transitway Extension VE/Constructability Workshop

Key Objectives of Undertaking:

- Deliver the CTC concept plan as approved by City Council
- Meet the funding deadlines applicable to the opening of the CCTBS facility
- Minimize the visual, sound and vibration impacts of the Transitway construction on the new CCTBS building
- Maintain Bus Transitway services without interruption
- Coordinate construction activities to increase efficiency and reduce overall construction costs
- Ensure that the City's requirements for design, construction and public safety are addressed
- Provide an equitable apportionment of the design and construction costs and savings

Southwest Transitway Extension VE/Constructability Workshop

Technical Issues Addressed:

- Soils and hydrology concerns
- Local storm sewer and stormwater management needs
- Utilities, in particular one significant watermain crossing
- Constructability and construction staging concerns
- Stakeholder interests (City, Algonquin College, OC Transpo & Archives)
- Proposals within context Environmental Assessment requirements

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Southwest Transitway Extension VE/Constructability Workshop

Summary of Results:

- 92 Ideas Generated under Target Areas:
  - Approvals and Permits
  - Sequencing of Construction
  - Future Linkages
  - CCTBS / Tunnel Interface
  - Construction Procurement
  - Storm Water Management
  - Utility Relocations
- Ideas Represented Changes in:
  - Design Approach
  - Design Simplification
  - Reconsideration of Design Criteria
  - Introduction of New Design Elements

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Southwest Transitway Extension VE/Constructability Workshop

Summary of Results *continued*:

- 10 Alternative Design Proposals
  - ☞ Each formulated into workable alternative solution
- 27 Design Suggestions
  - ☞ Offered for further consideration
  - ☞ Potential savings not quantifiable during workshop

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Southwest Transitway Extension VE/Constructability Workshop

Key Results:

- Relocate 1200 Watermain First
- Make Navaho & College Overpass Structures Integral Part of the Tunnel
- More Openings in Tunnel Roof
- Build CCTBS with Structural Slab on Piles
- Use a Higher Transitway Profile
- Raise Transitway Profile to Miss Tallwood Sewer

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Relocate 1200 Watermain First:

- 280-metre shorter route - $1.6M saving
- Shorter construction timeframe
- Makes way for the trench / tunnel.
- Makes way for the Navaho Drive bridge structure
- Must relocate to facilitate trench/tunnel and Navaho bridge construction - Summer 2010

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Southwest Transitway Extension VE/Constructability Workshop

Make Navaho & College Overpass Structures Integral Part of the Tunnel:

- Simplifies the design and construction
- Joints between bridge structures and tunnel are eliminated
- Eases requirements for wider cross-sections at the bridges to handle temporary additional space / width for construction traffic.
- Top of bridges and tunnel are the same – no need to depress areas in tunnel roof to accommodate soil and plantings

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More Openings in Tunnel Roof:

- More cost-effective approach to address building/fire code requirements
- Lots of daylight, open feeling at lower level (station)
- Reduce mechanical equipment needed for smoke evacuation
- Eliminate Code issues with BRT and LRT sharing same area (no longer classified as a building)
- Could incorporate openings into plaza features, e.g. art work, benches, shade structures

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Build CCTBS with Structural Slab on Piles:

- Addresses long term differential settlement risk due to water table draw-down
- Structural slab on grade will simplify transmission of lateral loads between foundations and structures
- Reduces risk of floor settlement, cracking & damage to non-structural elements
- Reduces/Eliminates building surcharge loads on transit tunnel
- Simplifies construction.
- Reduced long-term maintenance costs to repair settlement damage.

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Use a Higher Transitway Profile:

- Mitigates basal heave and water table issues
- Decreases excavation and disposal quantities
- Decrease height of retaining walls
- Mitigates clearance issues between top of SWM facilities and Transitway pavement structure
- Accommodates SWM facilities in the Transitway corridor

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Raise Transitway to Miss Tallwood Sewer:

- Reduces risks of surcharging Tallwood interceptor into Transitway corridor
- Reduces maintenance concerns and associated disruptions to transit
- Cost savings related to the geotechnical design for the corridor
- Cost savings associated with reduced length of interceptor
- Reduces risk associated with interceptor operating under surcharged conditions

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Questions?

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