# Langstaff Gateway
# Land Use & Built Form Master Plan:
# DSC Presentation

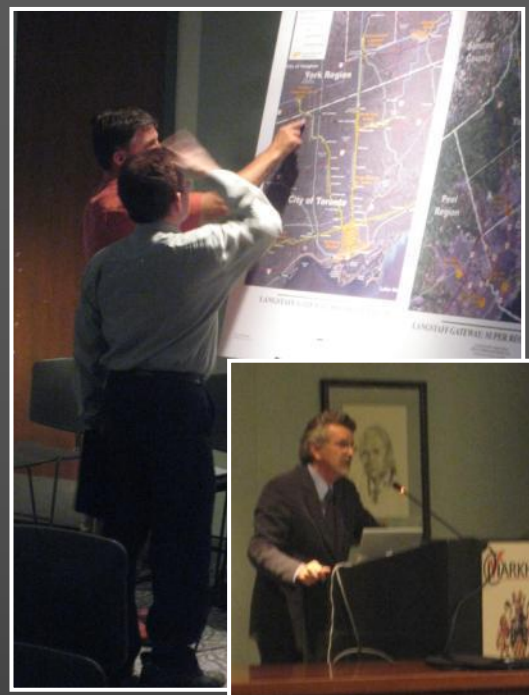

**April 7, 2009**


Ferris + Associates Inc.
Landscape Architecture and Urban Design

CALTHORPEASSOCIATES
URBAN DESIGNERS. PLANNERS. ARCHITECTS

# Masterplan Process:

- **Kick-Off**
  - June, 2008
- **Vision Workshop**
  - July, 2008
- **Design Workshop 1**
  - November, 2008
- **Design Workshop 2**
  - February, 2009
- **Presentation to Stakeholder Agencies**
  - April, 2009
- **Presentation to Development Services Committee**
  - May, 2009



# Public Process: Participant Feedback

- To be Summarized in the “Workshop Results Report”

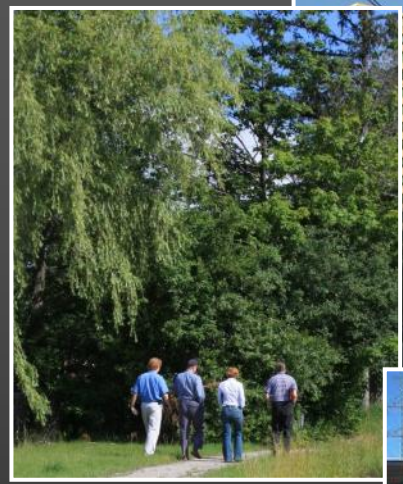
- . . .Some Highlights:
  - Preservation of the Woodlot
  - Enhancement of the Creek
  - Heritage buildings
  - Downstream flooding concerns
  - Sustainability
  - Appropriate density
  - Connectivity to neighbourhoods
  - . . .and much more


# DSC Presentation

# DESIGN PRINCIPLES

# Official Plan: Langstaff Development Principles

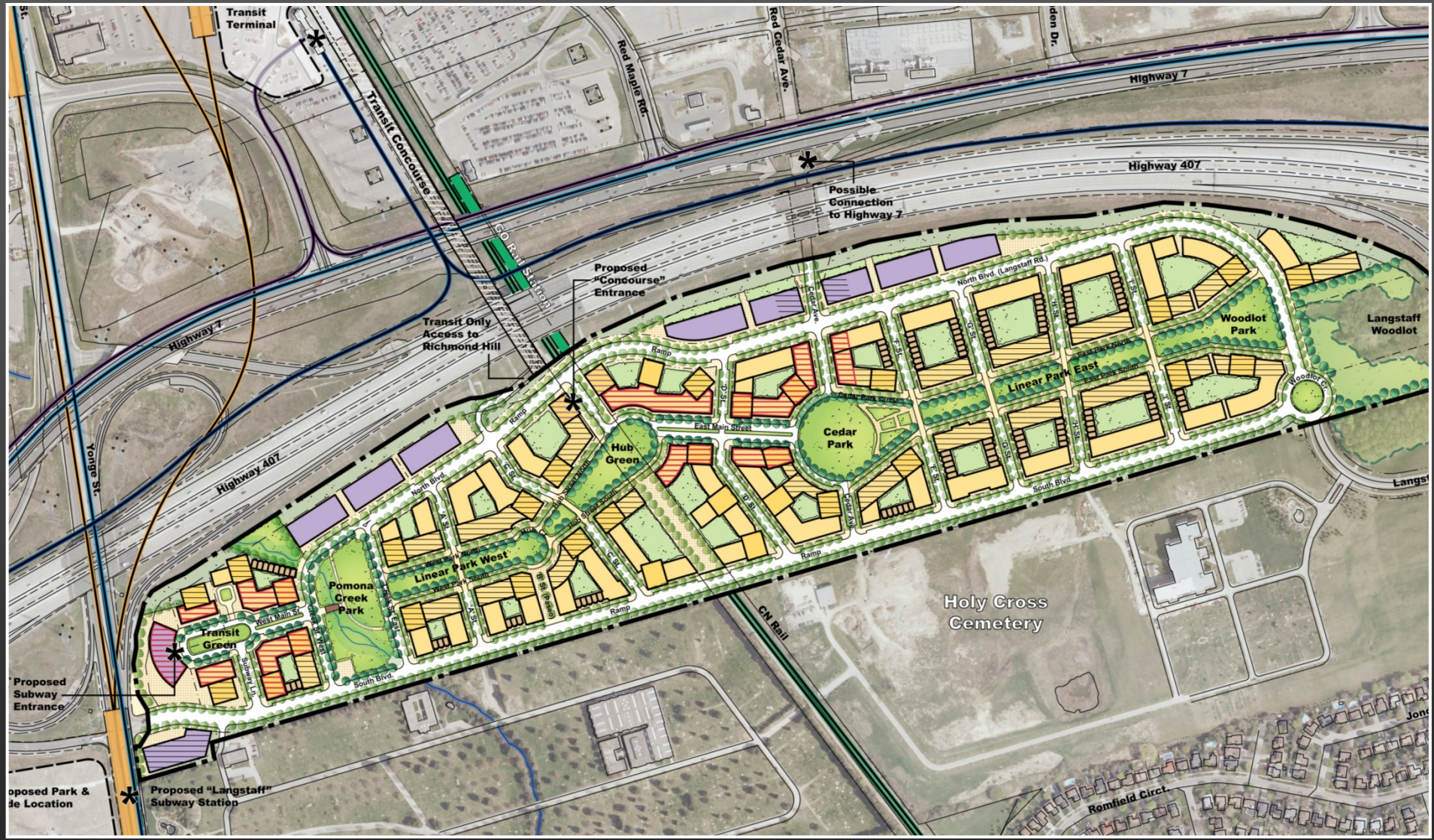
- A mix of higher order employment and high density residential land uses and compact building forms
- Provision of supporting community and service uses
- Transit-oriented land use and community design with an attractive public realm
- Mitigation of potentially negative impacts



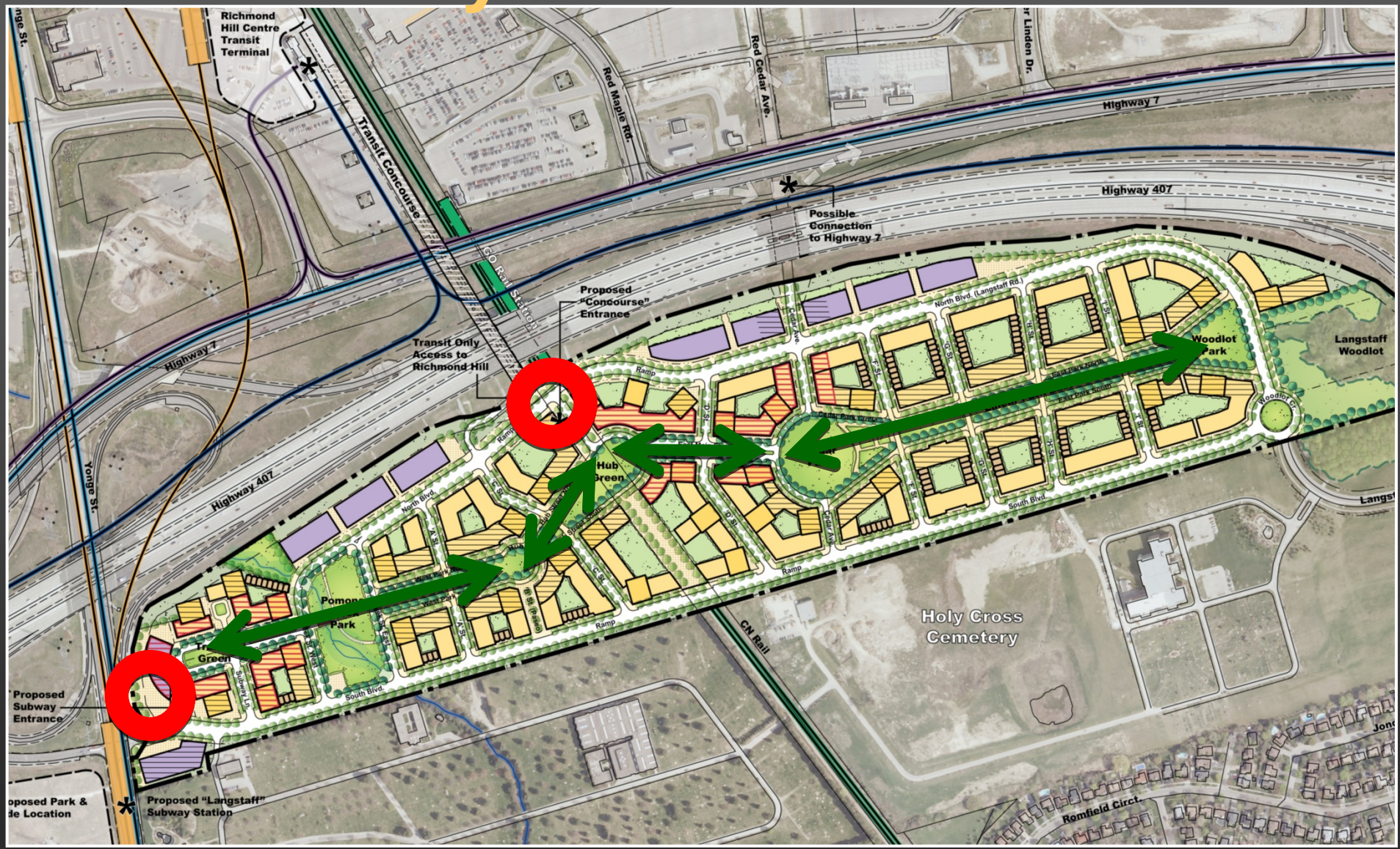

# DSC Presentation

# THE PREFERRED CONCEPT PLAN

# Preferred Concept Plan:



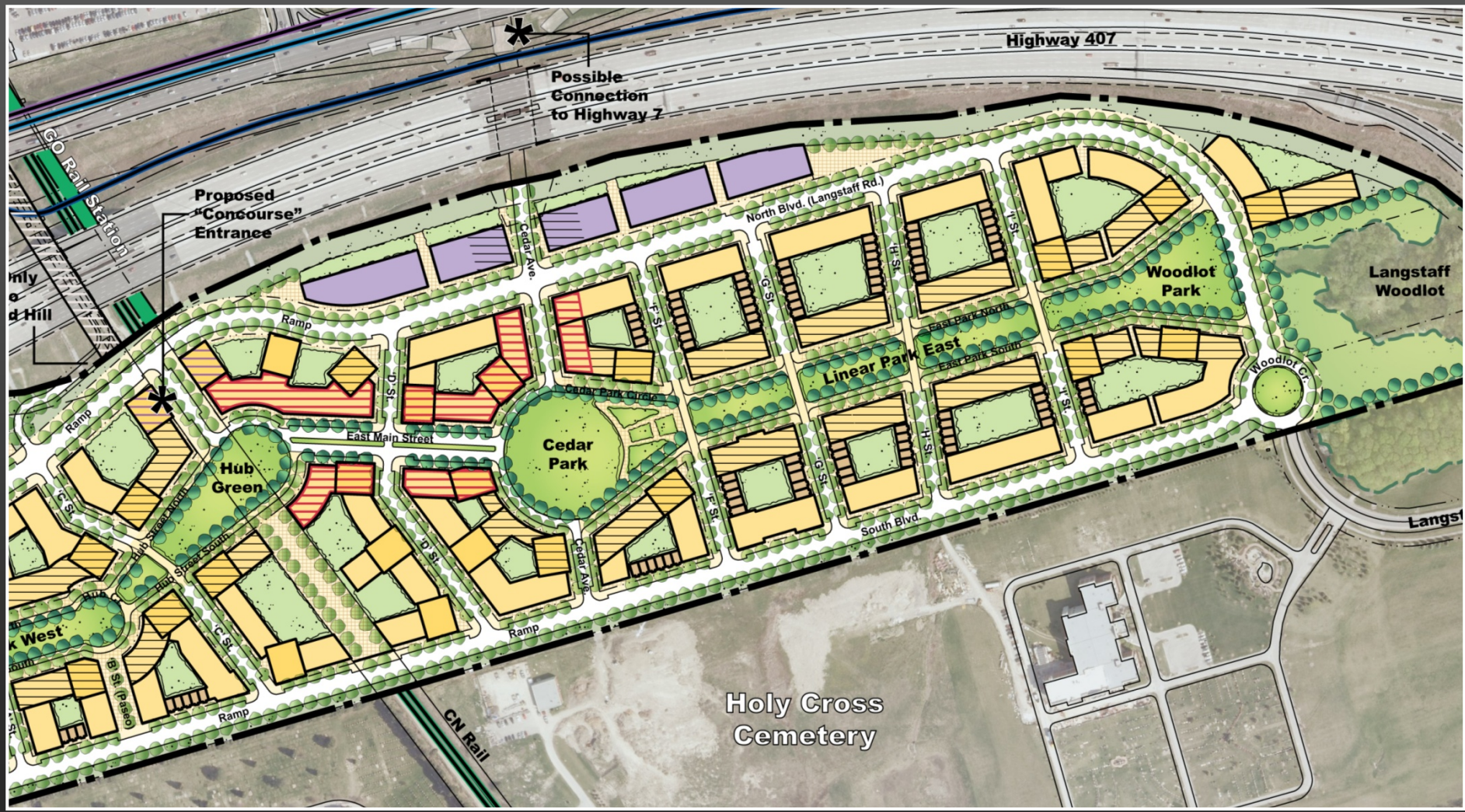
# Connectivity:



# Preferred Concept Plan

## West Side

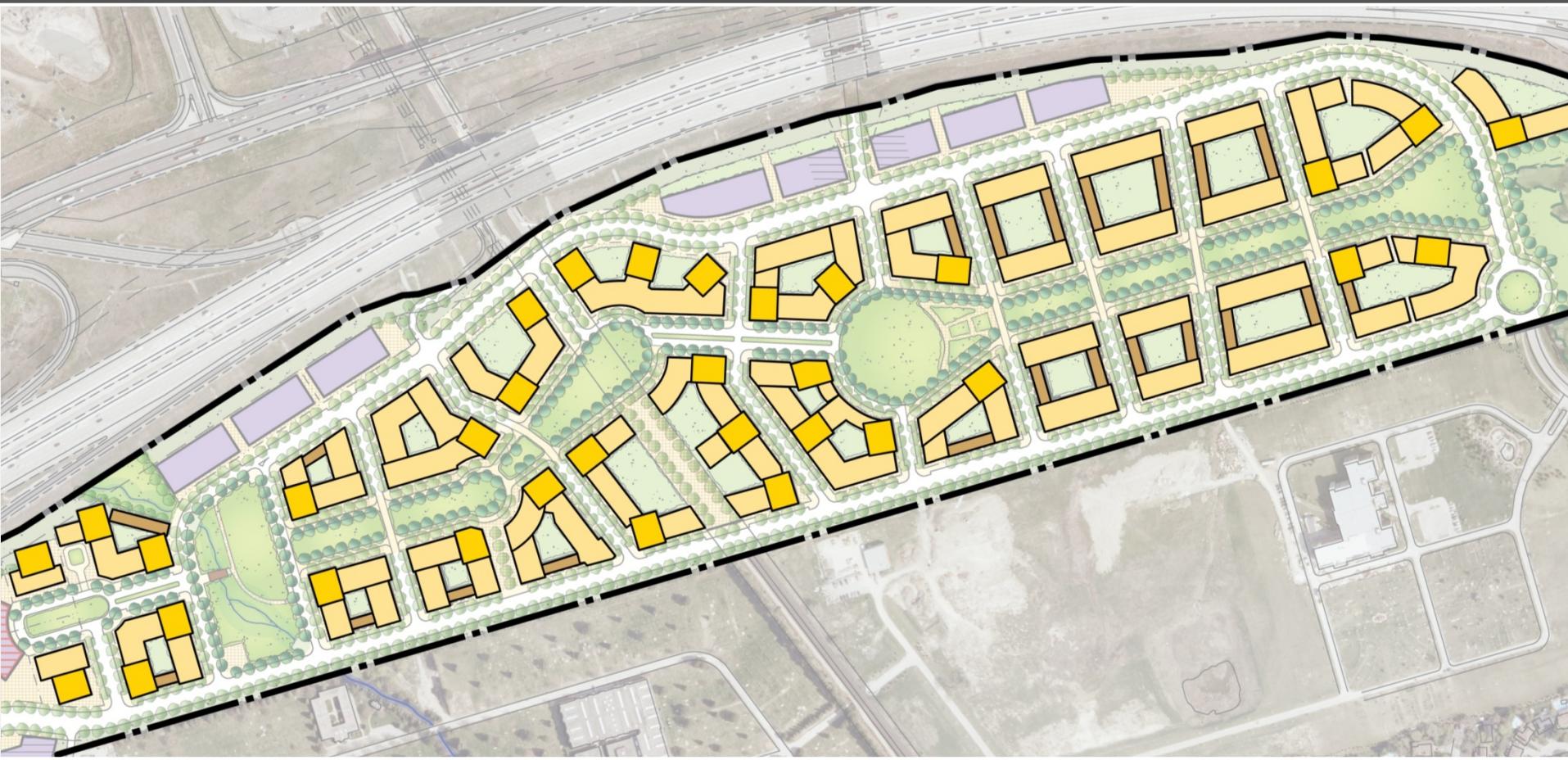
# Preferred Concept Plan
# East Side



# DSC Presentation

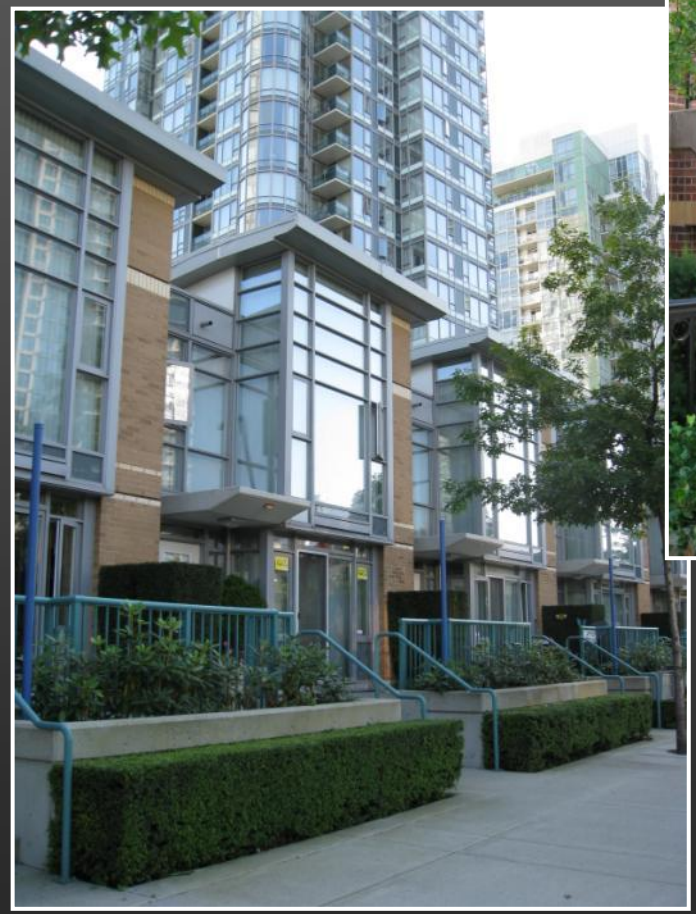
# LAND USES
# &
# BUILDING TYPES

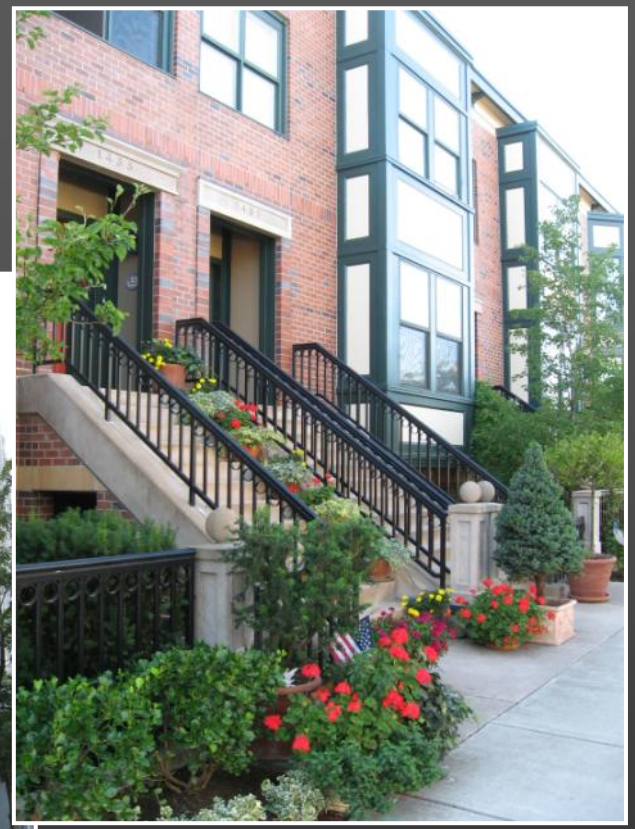
# Land Uses:
# Residential



# Building Components: “Liner ” Townhouse

- Pedestrian scale attached single-family homes
- Townhouse product screens parking structure from view
- Individual entrances
- Bay windows, stoops, porches, balconies





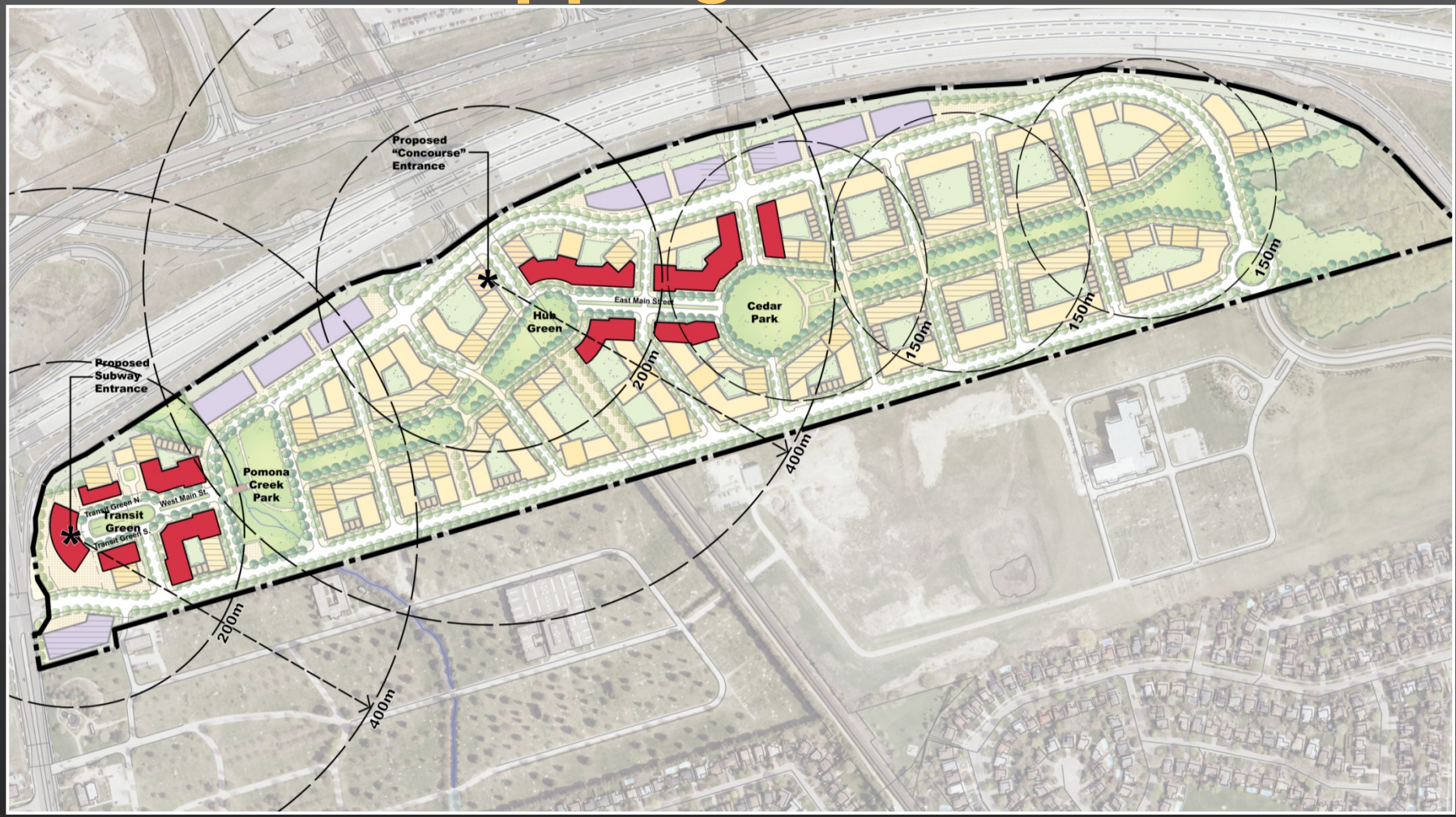
# Building Types: "Boulevard" Building

- Building face shapes the street
- 6 to 10 stories (8 + 2-story penthouse level, set back from street)
- Double-loaded corridor
- Balconies, porches, lobbies, etc.

# Building Types: "Point" Tower

- Slender towers of varying heights are graceful addition to skyline
- Tower placement takes views & vistas into account
- Iconic architecture for most visible buildings

# Land Uses:
# Retail & Shopping Areas

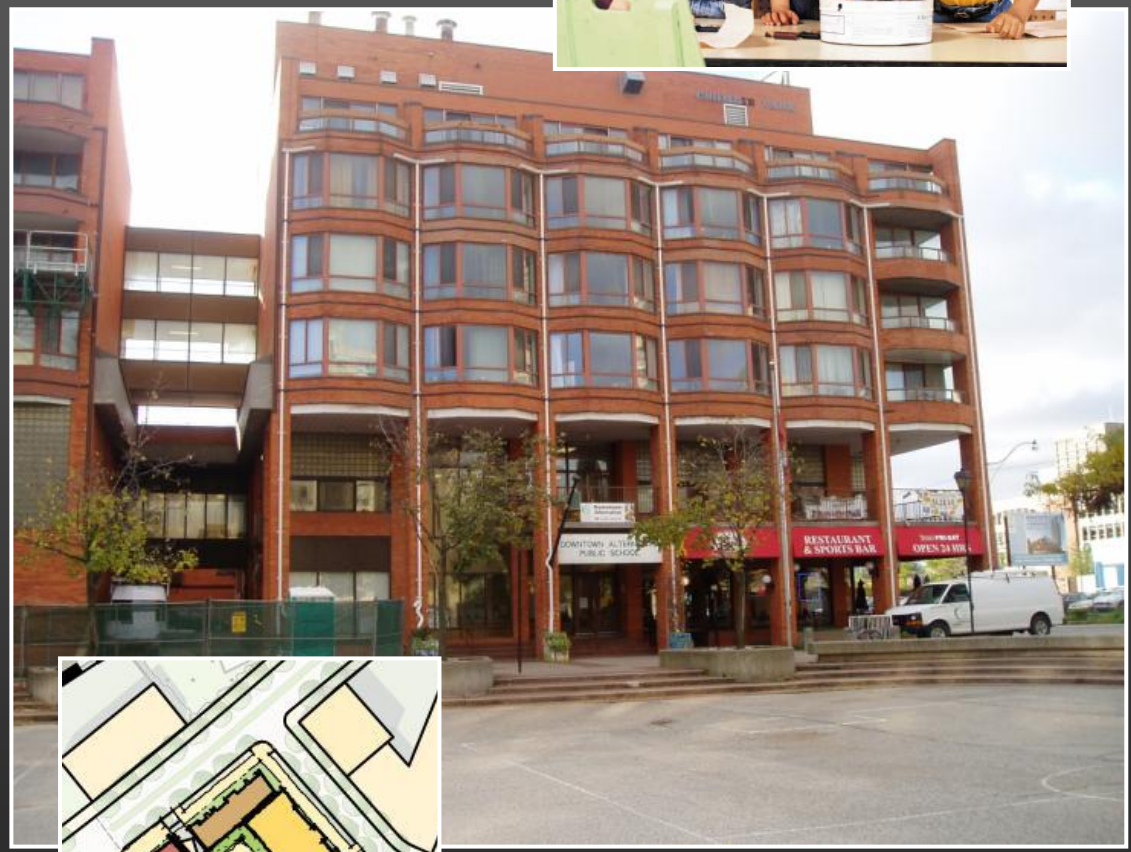


# Land Uses:
# Retail & Shopping Areas

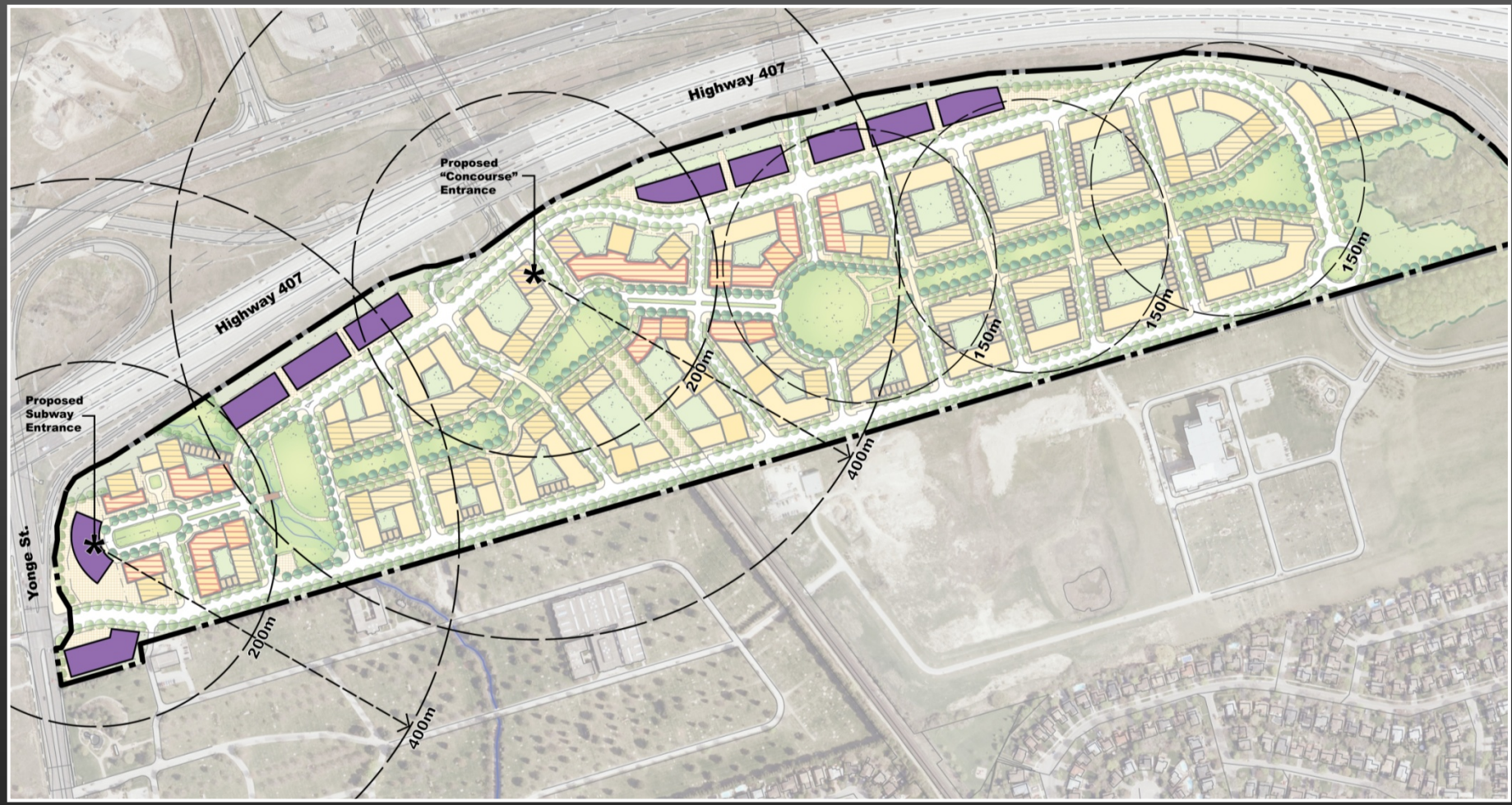
- One major shopping area on each side of tracks
- Ground floor retail animates the sidewalk
- Spacious sidewalks allow for café seating areas
- Retail encouraged in other locations as well

# Land Uses:
# Integrated Civic Uses

- Schools (& other civic uses) integrated into mixed-use blocks (near to where people live)
- Urban school format (instead of stand-alone suburban school type)
- Shared facilities

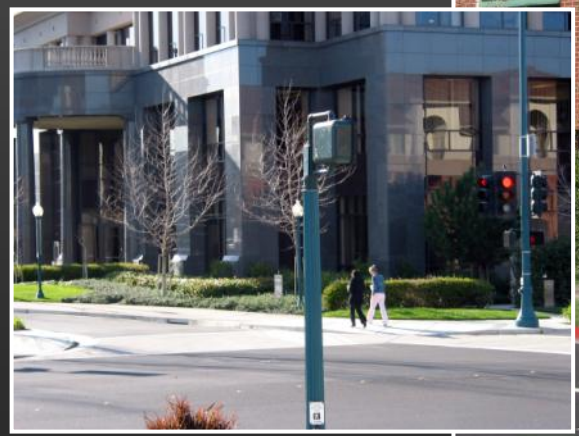


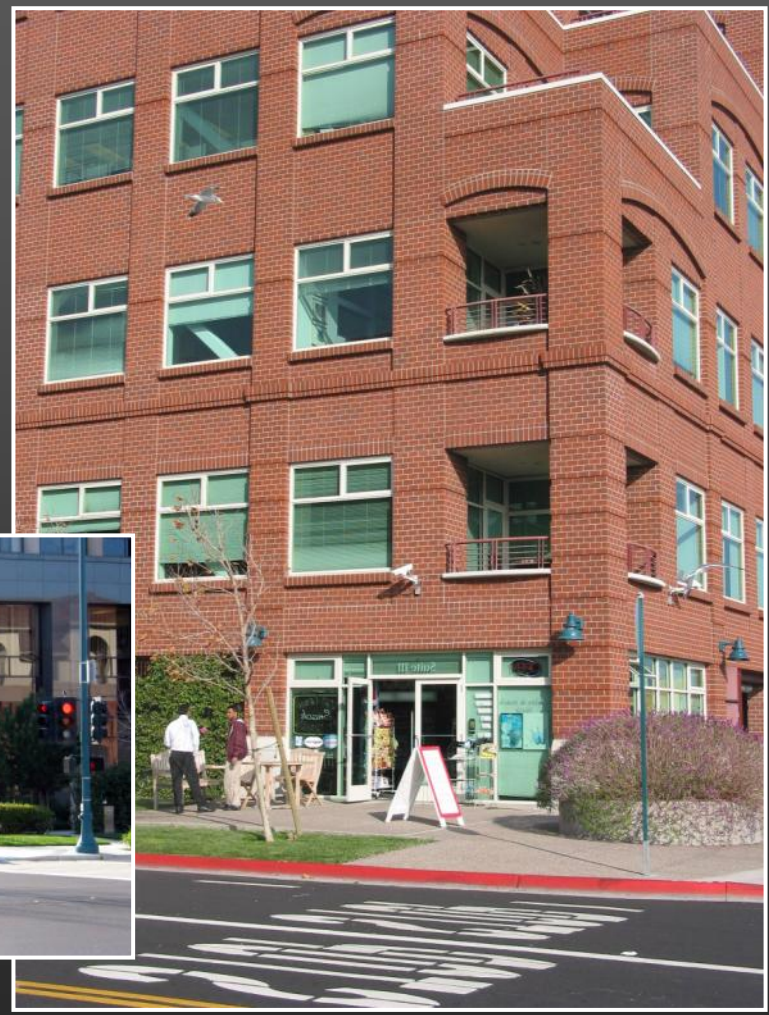

# Land Uses:
# Office & Employment



# Land Uses:
# Office & Employment

- Jobs are key component of a mixed-use transit-oriented project
- Parking screened from street
- Active uses at ground floor
- Office buffers project from Highway





# DSC Presentation

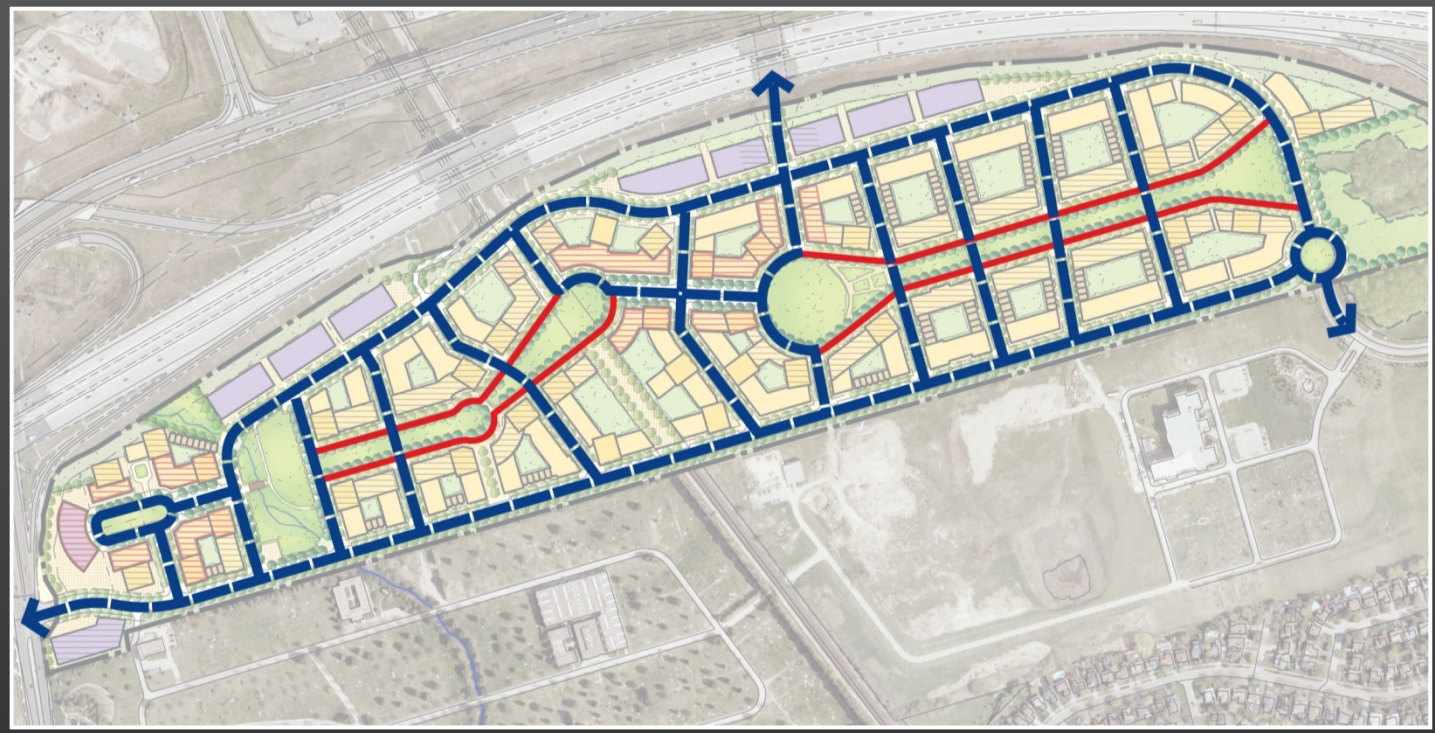
# LIVABILITY
# &
# URBANISM

# Livability & Urbanism:
# The Jane Jacobs Principles

- Emphasize Public Realm
- A Vibrant Mix of Uses
- Small blocks
- Streets for People
- Varied Architecture & Building Massing
- Healthy  Mix of Public and Private

# Livability & Urbanism: Interconnected Street Grid

- Network of streets is framework for good urbanism
- Some streets are ped only, others for people and cars
- More street connections makes walking easier



# Livability & Urbanism: Small Blocks

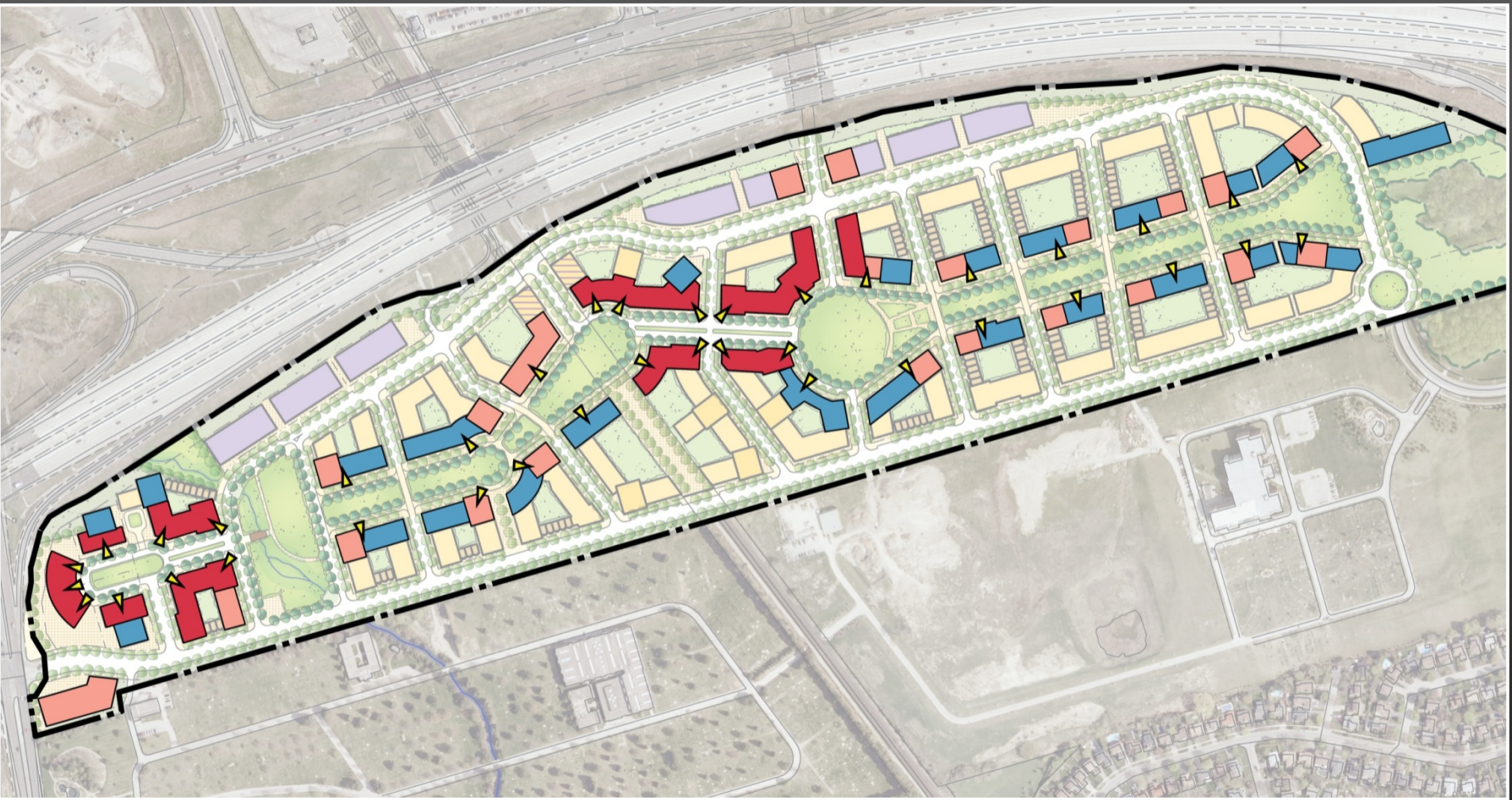
- Small, varied blocks create good pedestrian environment
- Size varies, but typical dimension is 70m by 85m (0.6 ha)
- Compare with Portland, OR: typical Portland block is 60m x 60m.

# Livability & Urbanism:
# Streets for People

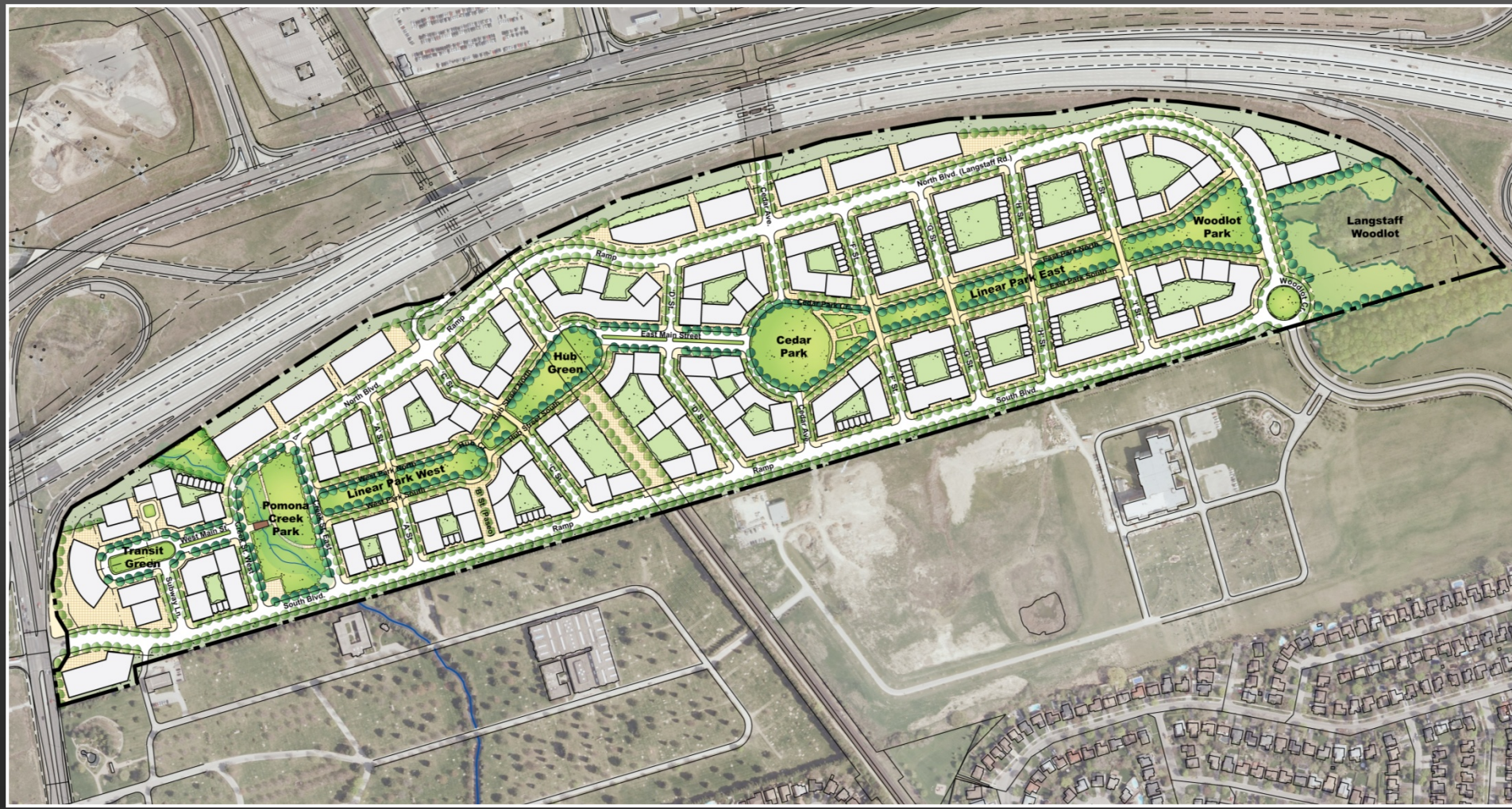
- No building taller than 6 stories on local street
- Corner sidewalk “bulbouts” favor pedestrians
- Plentiful street trees
- Varied building setbacks

# Livability & Urbanism:
# Shadows


# Livability & Urbanism:
# A Vibrant Mixed-Use Public Realm



# Livability & Urbanism:
# Plentiful Open Space



# Langstaff Land Use and Built Form Master Plan

*Transportation Assessment*

*April 7th Development Services Committee Meeting*

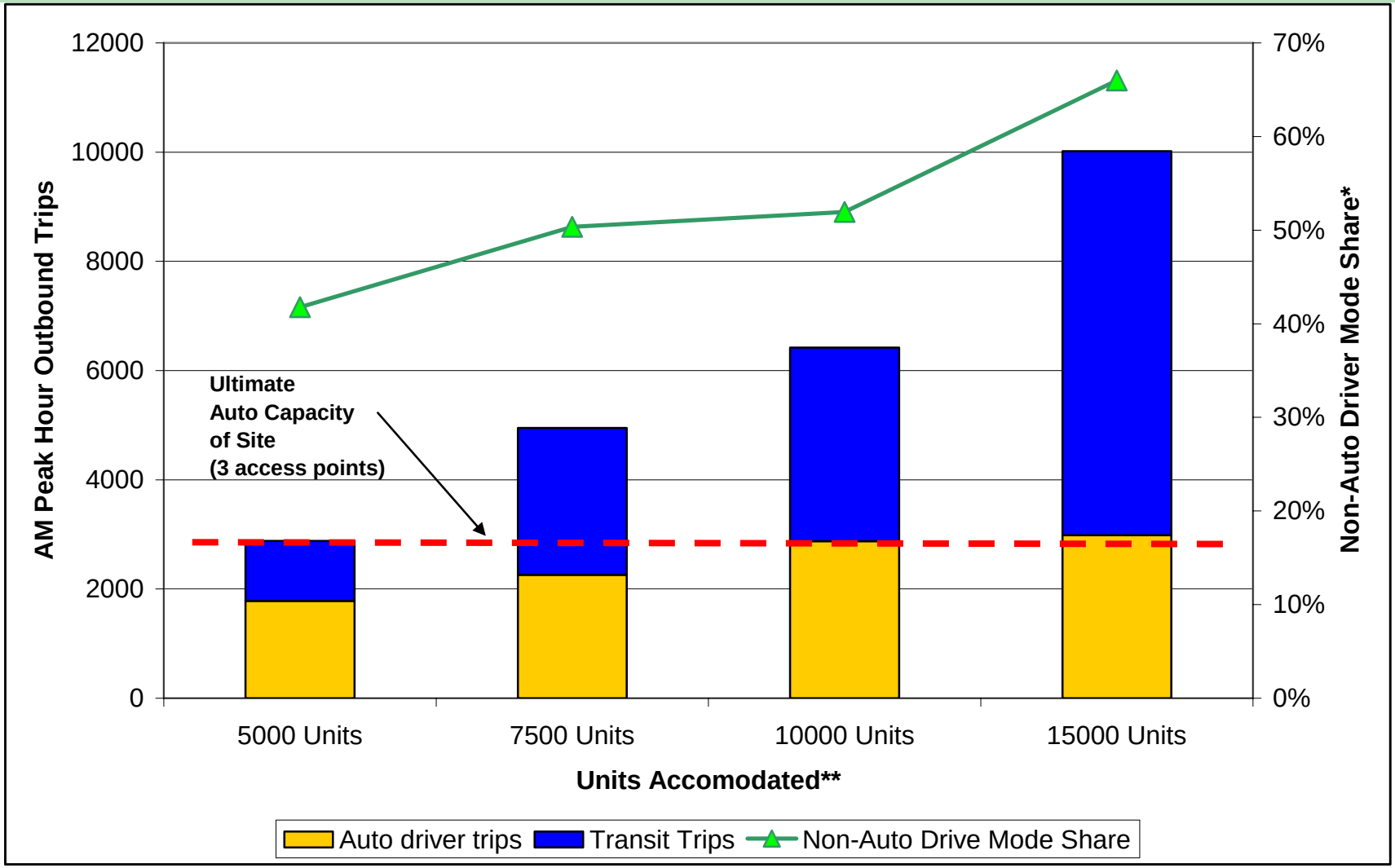
# Transportation Assessment – Key Themes

- Land use and supporting infrastructure needs to be designed around “pedestrians first”
- Future transit capacity is unprecedented
- Development densities should be tied to total person capacity, not road capacity only
- Achieving target densities requires many innovative measures – “paradigm shift” in thinking
- Innovative measures are dependent high densities
- Development phasing needs to be tied to transportation performance
- Plan must be compatible with and supported by Regional initiatives

# Feedback from Agencies on Transportation

- Recognition that development should not be constrained by road capacity
- Concern about traffic impacts on regional and provincial facilities
- Need to enshrine car-constrained policies from day one
- Concern about cumulative impacts of Langstaff plus adjacent developments and park-and-ride facilities
- May need additional north-south connections
- Need to ensure connections to/from Thornhill community

# Langstaff Gateway Development Capacity



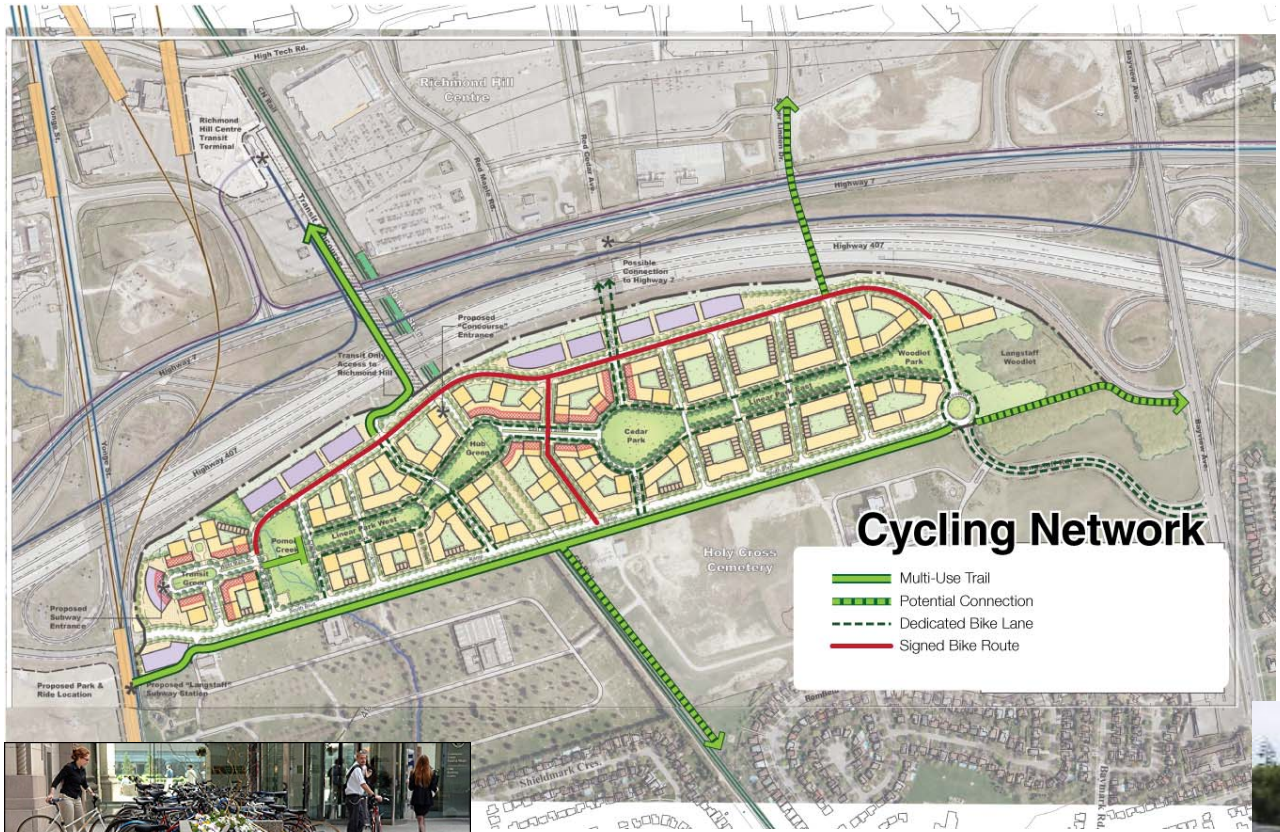

*** Includes walking, cycling, transit and auto passenger (rideshare) trips**

**** Corresponding office and retail development is assumed (up to 300,000 $m^2$ GFA)**

# Example Innovative Measures to Achieve Transportation Objectives

- Promotion of zero-car households
- Zero emission circulator bus
- Intelligent offices in ground floor
- Central parcel pick-up
- Extensive Bike-share and car-share


# Proposed Bike Network




# Proposed Transit Network

# Potential Transportation-Related Performance Measures

- Ratio of jobs to residents (target is 1:1)
- # of zero-car households
- Non-residential parking supply
- Non-automobile modal shares
- Transit capacity and service levels
- # of auto trips entering and leaving site
  - Peak hour; off-peak; Saturday

# Next Steps

- Detail supporting policies for secondary plan
- Develop conceptual plans for site access roads
- Develop specific “metrics” for performance measures
- Continue discussion of coordinated Regional transportation and land use strategies

# DSC Presentation

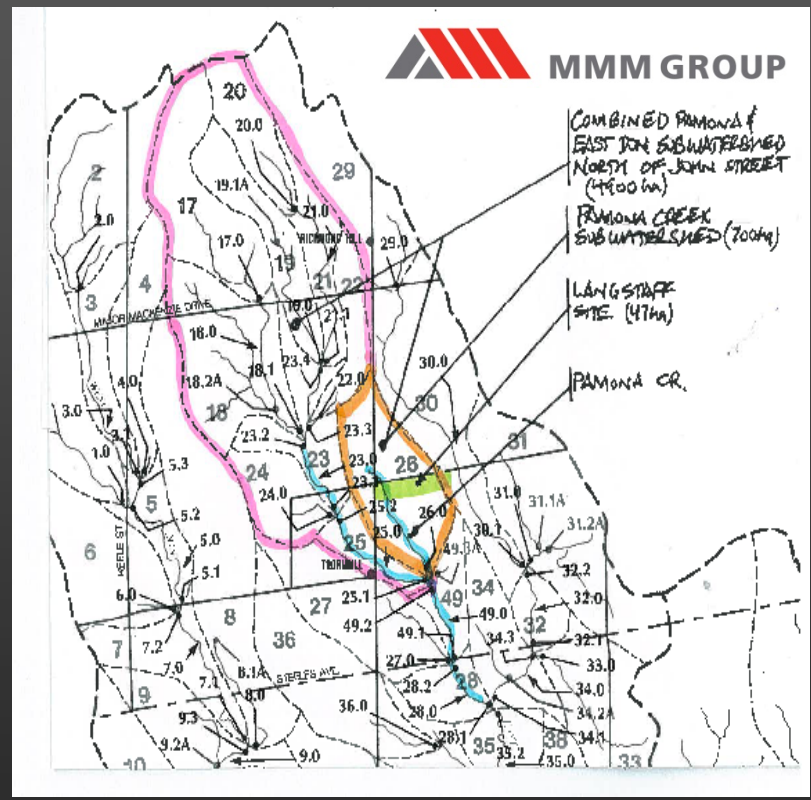
# STORMWATER
# &
# SERVICING

# Preferred Concept Plan
# Master Servicing Plan

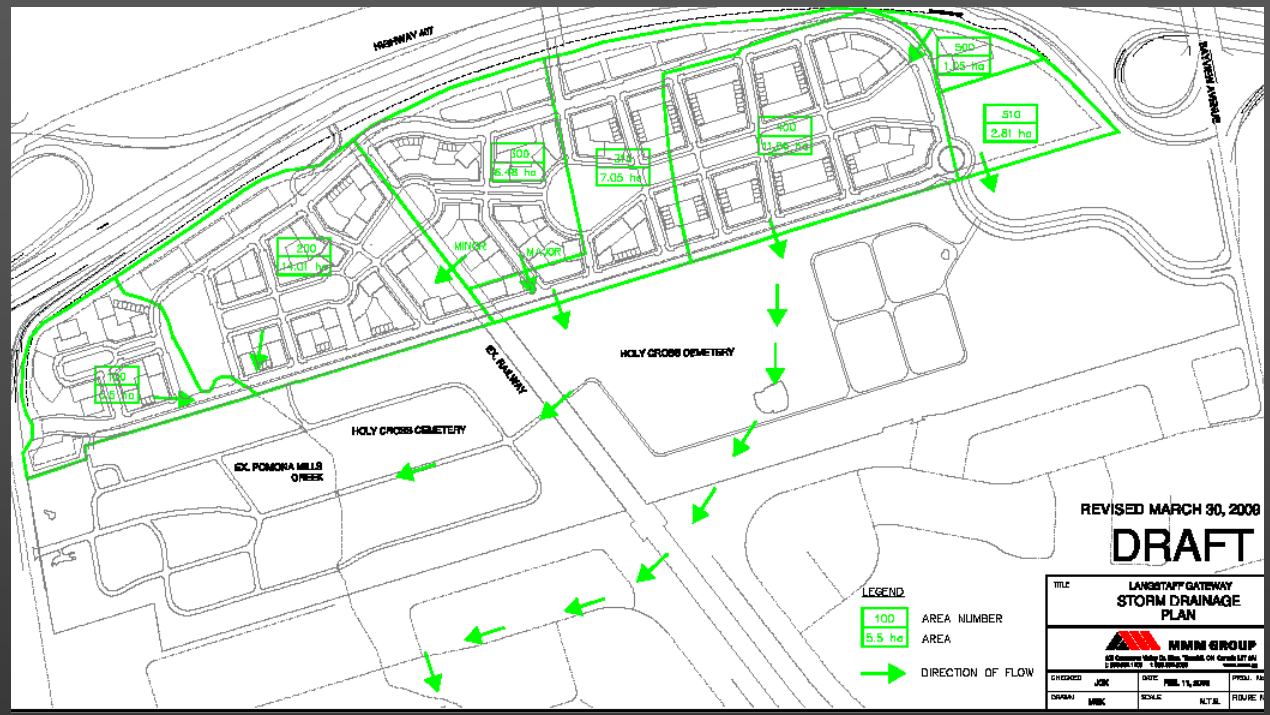
- MMM Group retained by the Langstaff Landowners to complete a Master Servicing Plan (MSP) under the direction of the Town of Markham. This study will address:
  - Storm Drainage
  - Stormwater Management
  - Sanitary Servicing
  - Water Distribution System
- Town of Markham will peer review the MSP to ensure no adverse impacts on the downstream watercourse, existing sanitary sewer system or existing water distribution system.
- TRCA will also review and comment on the stormwater component of this study.

# Storm Drainage
# Sub-watershed Level

- Site is area 47 ha all located within the Pomona Mills Cr. sub-watershed
- Pomona Mills Cr. sub-watershed approximately 700 ha
- Site as percentage of Pomona Mills Cr. sub-watershed - under 7%
- Just upstream of John Street Pomona Mills Cr. joins the East Don River
- At that point the combined sub-watershed is approximately 4900 ha
- Site as percentage of combined sub-watersheds - under 1%



# Storm Drainage
# Site Level




## Main Features

- Pomona Mills Creek
- North to south drainage
- CN tracks have disrupted natural drainage patterns
- East portion of site drains south through Cemetery's SWM pond and is released via Markham storm sewer to Pomona Mills Creek at Kirk Rd.
- Entire site ultimately drains to Pomona Mills Creek.

# Stormwater Management
# Site Constraints

- **History of downstream flooding and erosion**
- **Riparian flow regimes have been compromised.**

Objectives

Quantity: Provide on-site controls to mitigate downstream impacts

Quality: Provide Level 1 control as directed by TRCA.

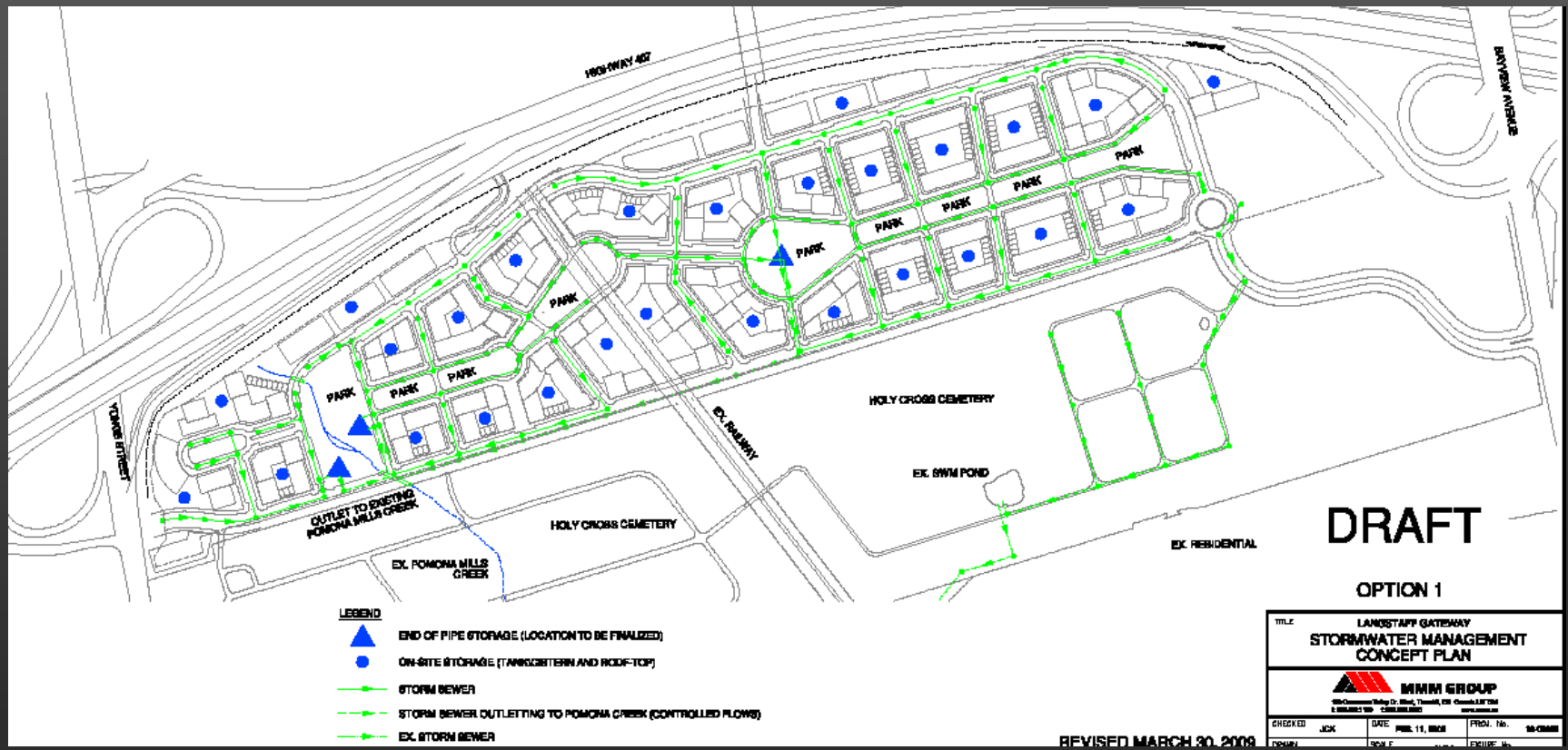
Erosion: Provide extended detention storage to obtain the control recommended by Aquafor Beech.

# Stormwater Management Techniques

Innovative stormwater management technologies and Low Impact Development (LID) practices will be considered and evaluated to promote water balance. In addition to water balance, these techniques will will be used to achieve the target objectives. Examples include:

- Green roof technology
- Infiltration
- Reuse for irrigation within blocks and parks
- Reuse for irrigation within cemetery
- Reuse as cooling water for district energy plant
- Reuse for toilet flushing

# Stormwater Drainage
# Proposed Scheme



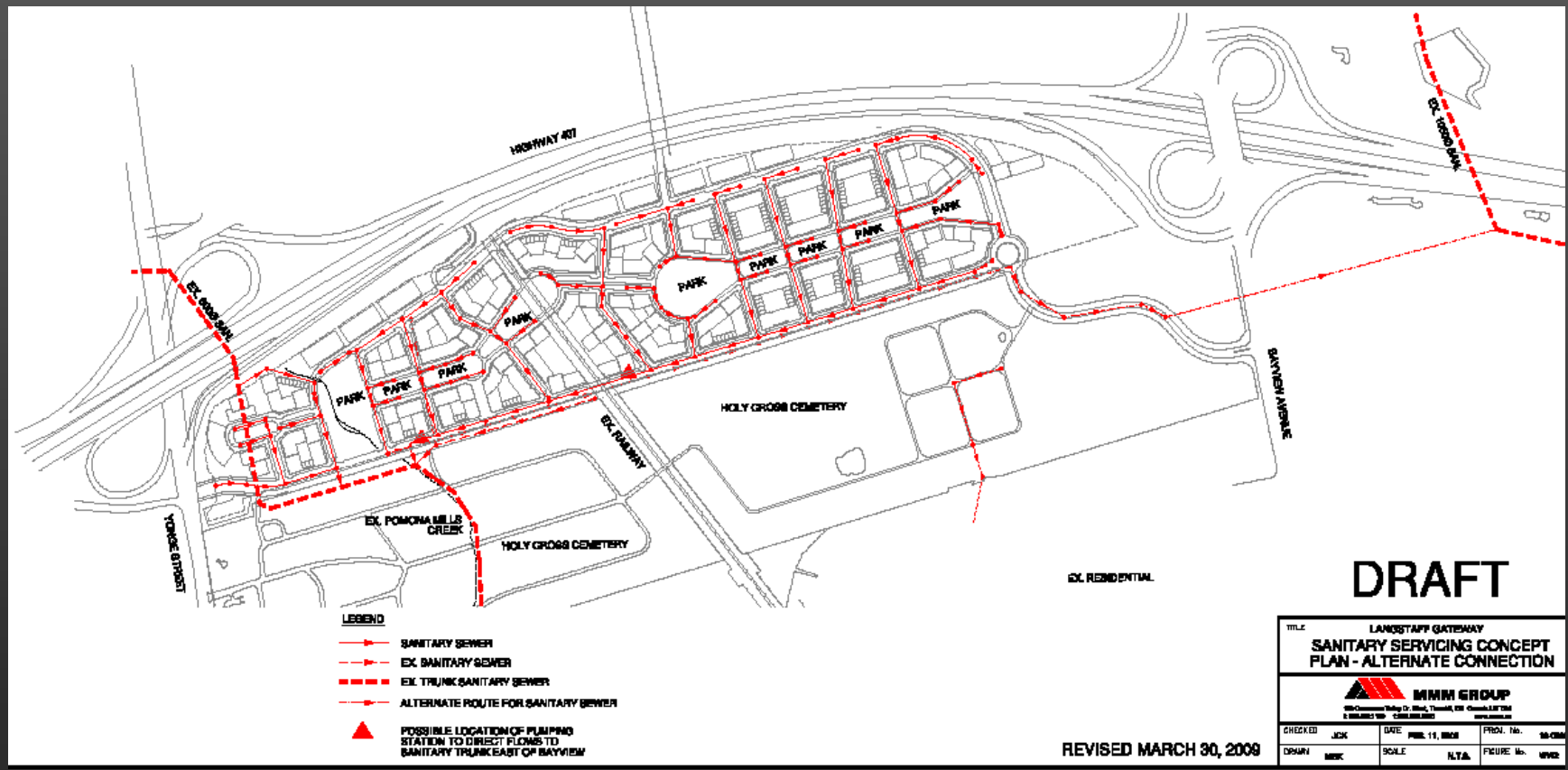
# Sanitary Servicing
# Existing Conditions/Constraints

- **Existing Regional sub-trunk crosses the site.**
- **Sub-trunk not designed to proposed flows**
- **Downstream surcharging**

Design Considerations

- Reconstruction of functioning ex sub-trunk
- Excess capacity in the existing sub-trunk sewer
- Alternative sanitary outlets
- Diversion strategy
- Water conservation/reuse

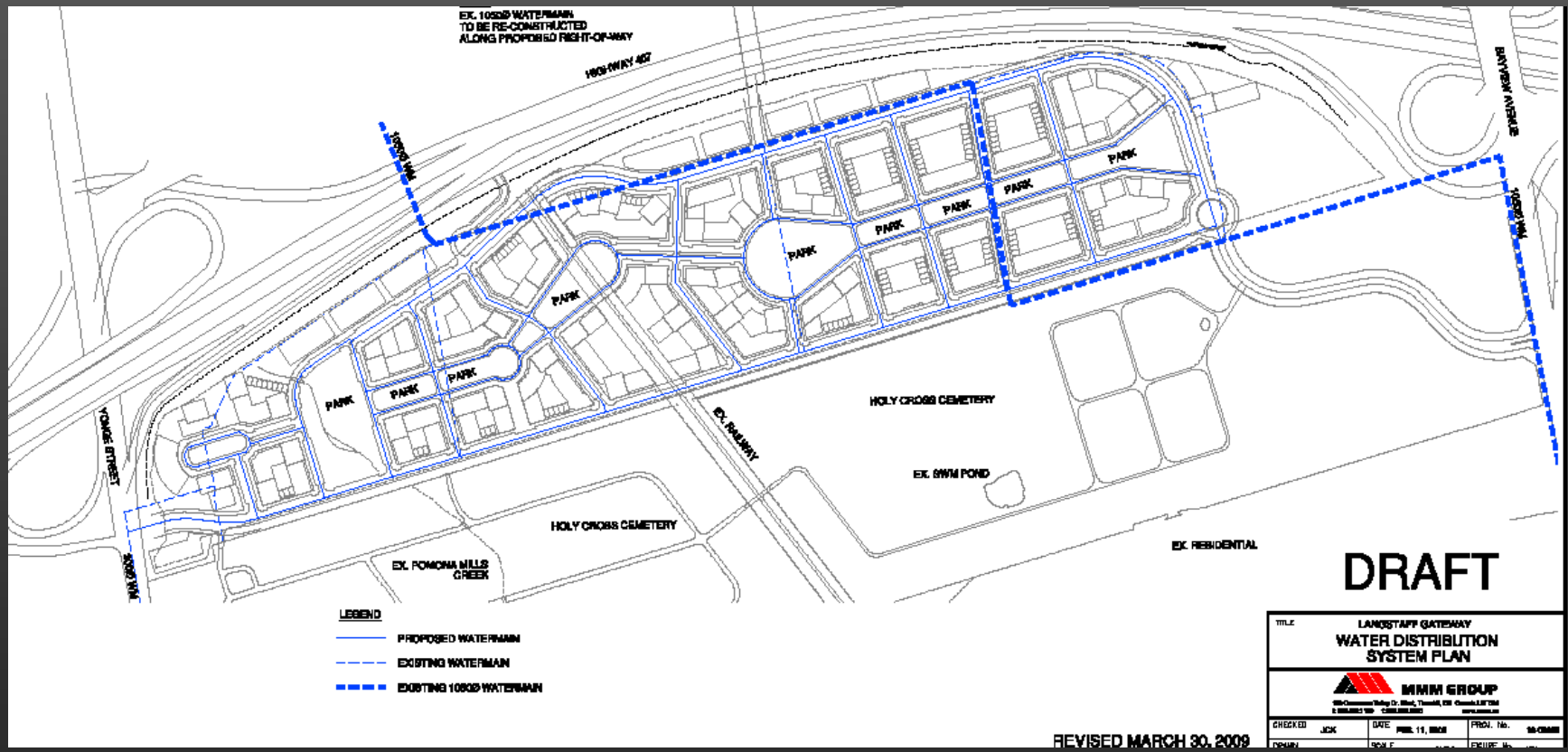
# Sanitary Servicing
# Proposed Scheme



# Water Distribution System Constraints/Considerations

- Existing Regional trunk main crosses the site
- Replacement vs. alignment of future roads to retain the trunk main.
- Relocation of trunk main while providing service
- Regional main will provide required supply for the site
- Pressure reducing valves will be required
- Water conservation

# Water Distribution System
# Proposed Scheme

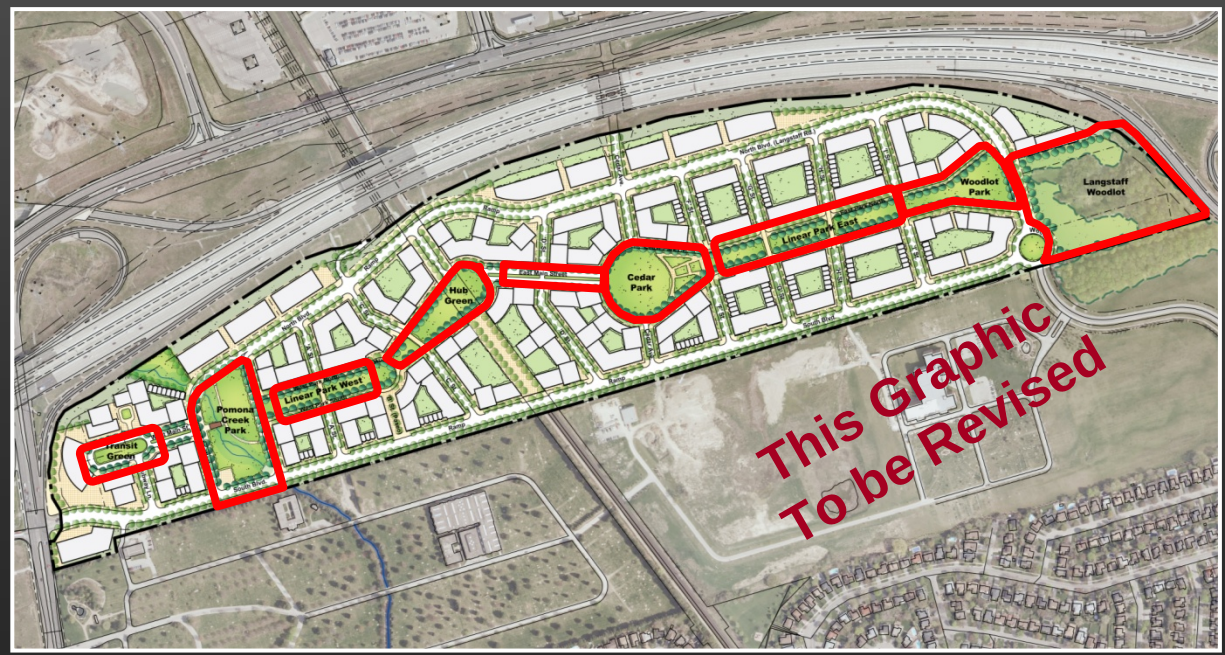


# DSC Presentation

# OPEN SPACE & LANDSCAPE CONCEPT

# Open Space:
# Landscape Concept Plan

- Continuous open space link from east to west
- 15% of site is usable public park land ('table' land); 23% is public open space.
- Urban plazas as well as green parks
- Active and passive open spaces

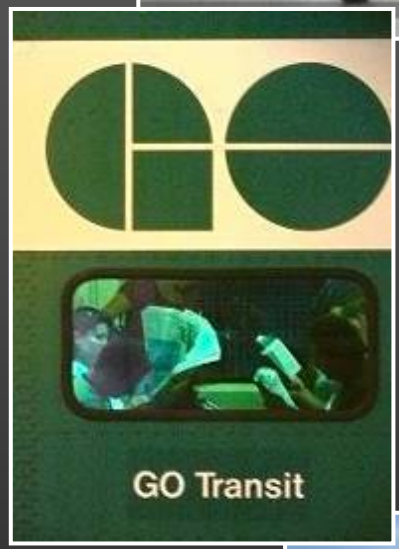


# DSC Presentation

# ORIENTATION TO TRANSIT

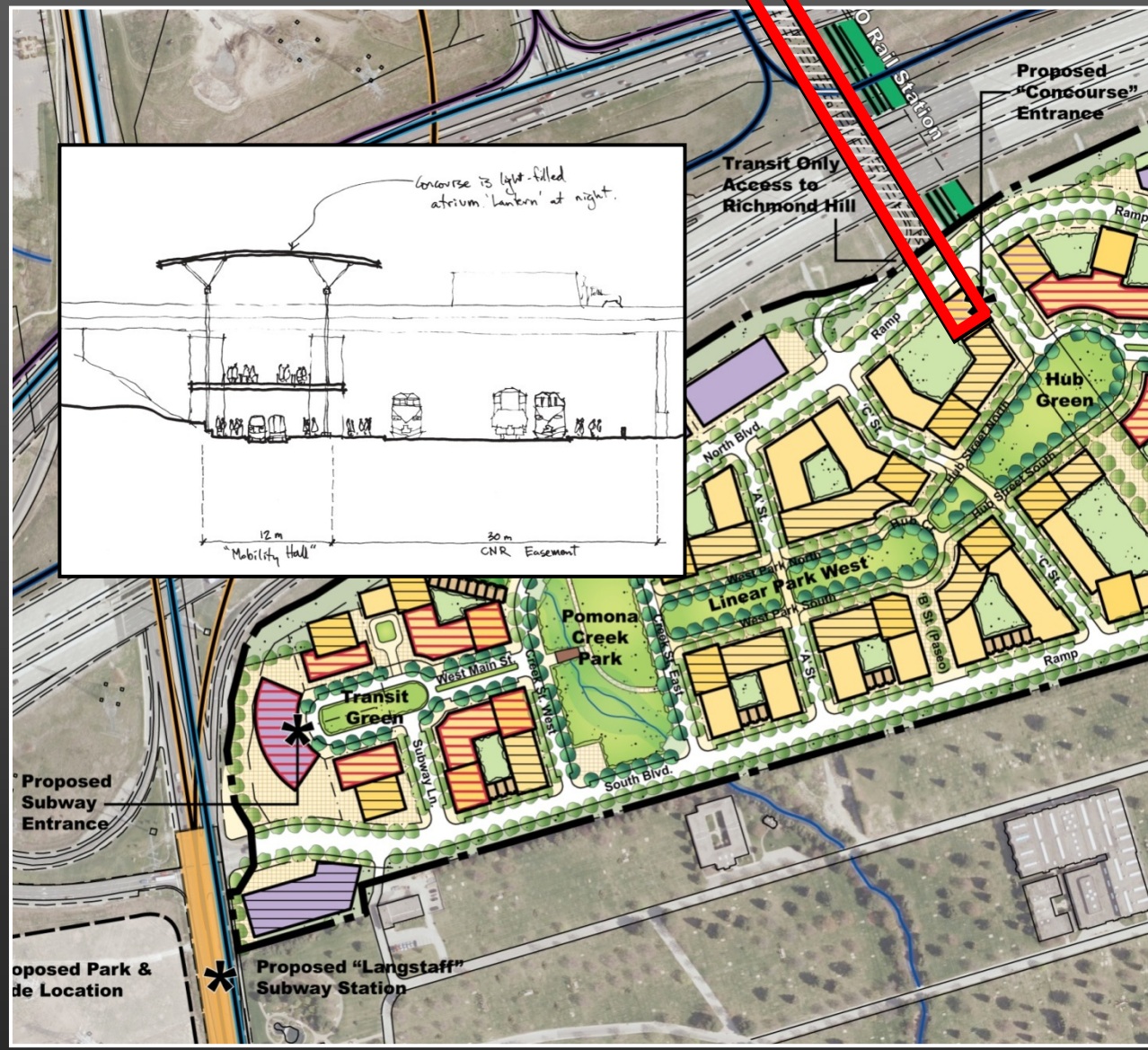
# Transit Plan: Modes

- GO Transit
- Bus (VIVA, YRT)
- Subway
- 407 Transitway
- Highway 7 Transitway
- Dedicated Internal Transit System (e.g., PRT)

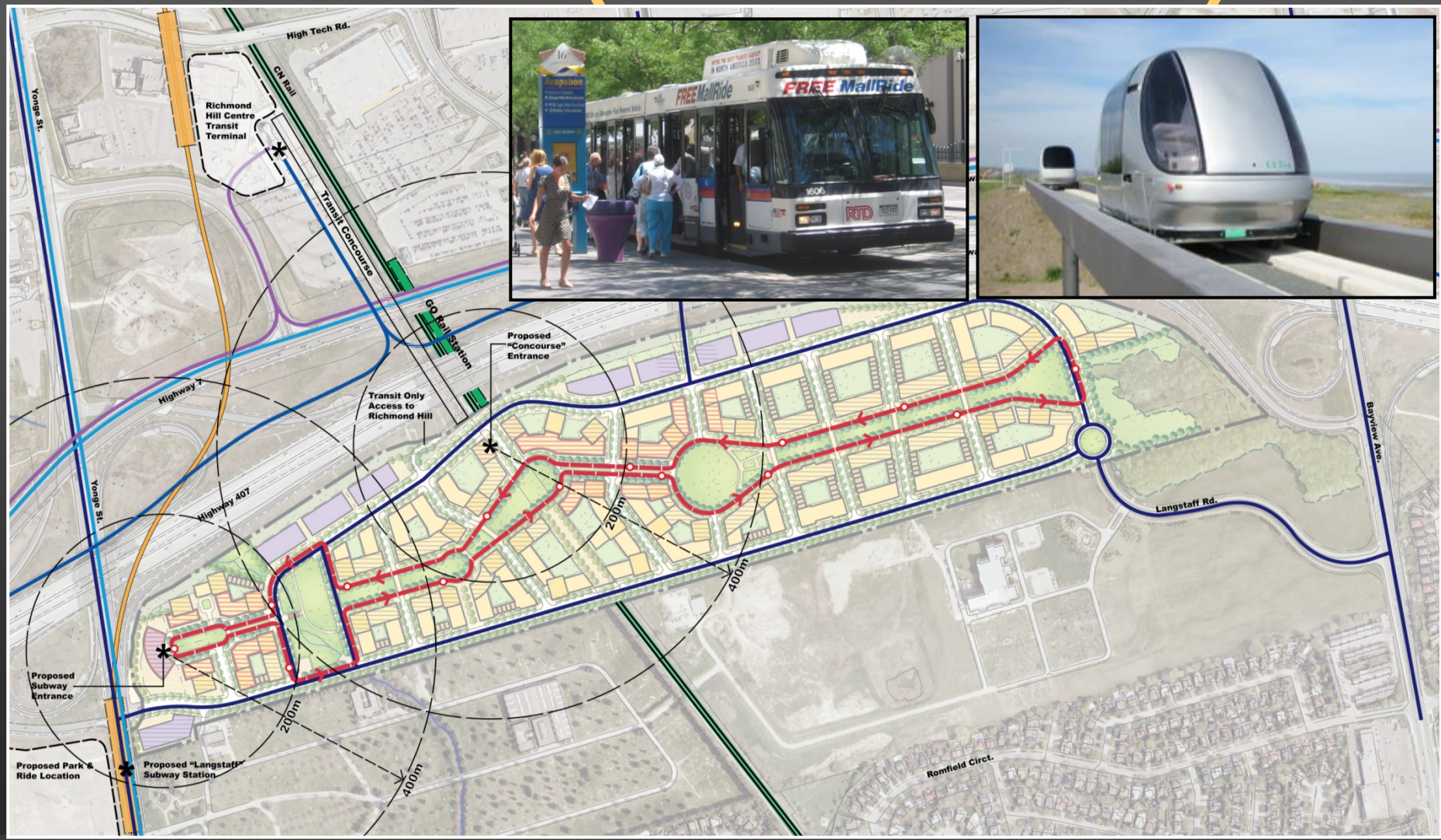



# Transit Access: The Concourse

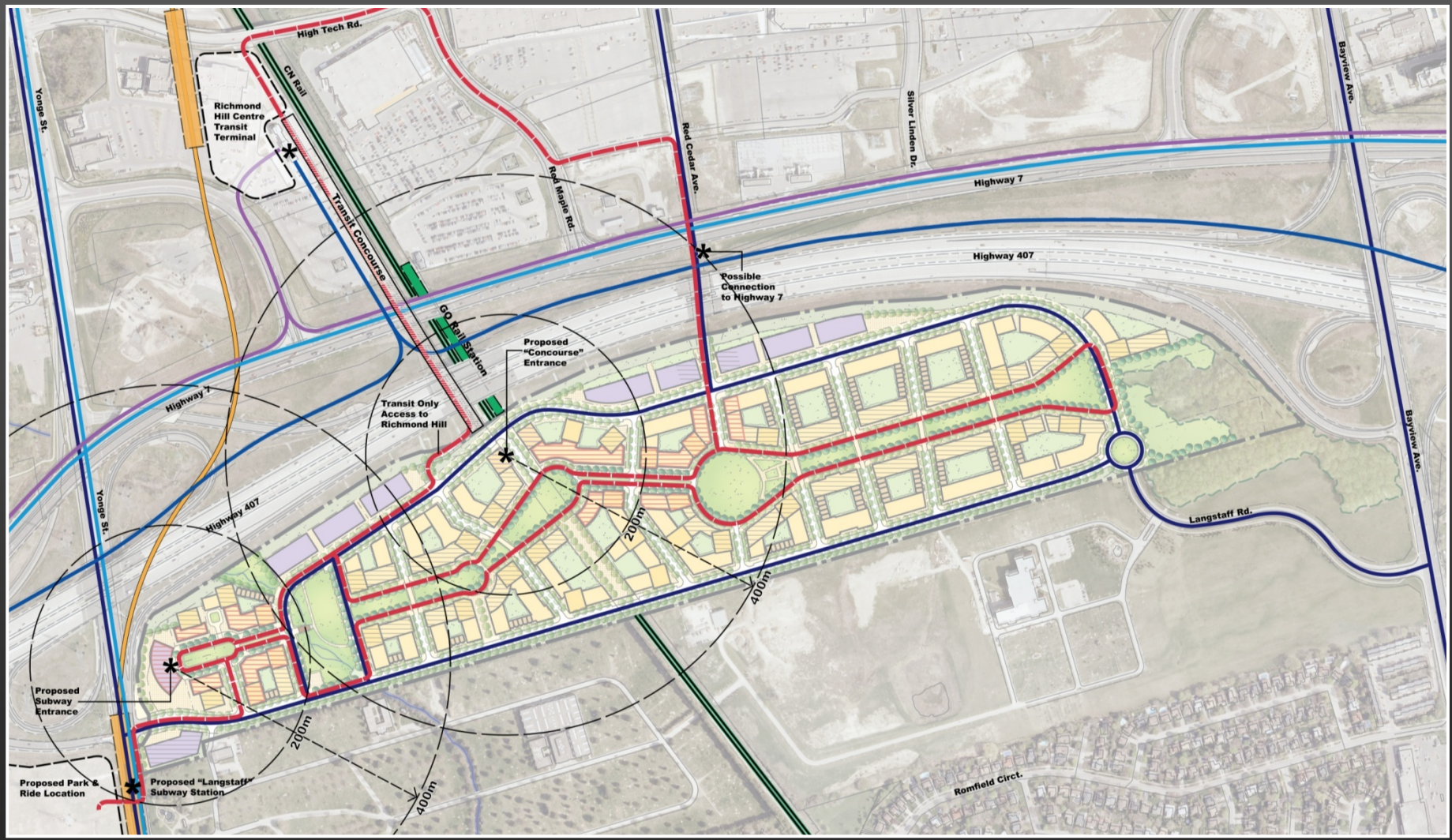
- A linear “Transit Hall”
- Connects both sides of Mobility Hub
- Links Langstaff Project to 407 and 7 Transitways and to Richmond Hill



# Transit & Transportation: "Transit Mall" (+ Peds & Bikes)



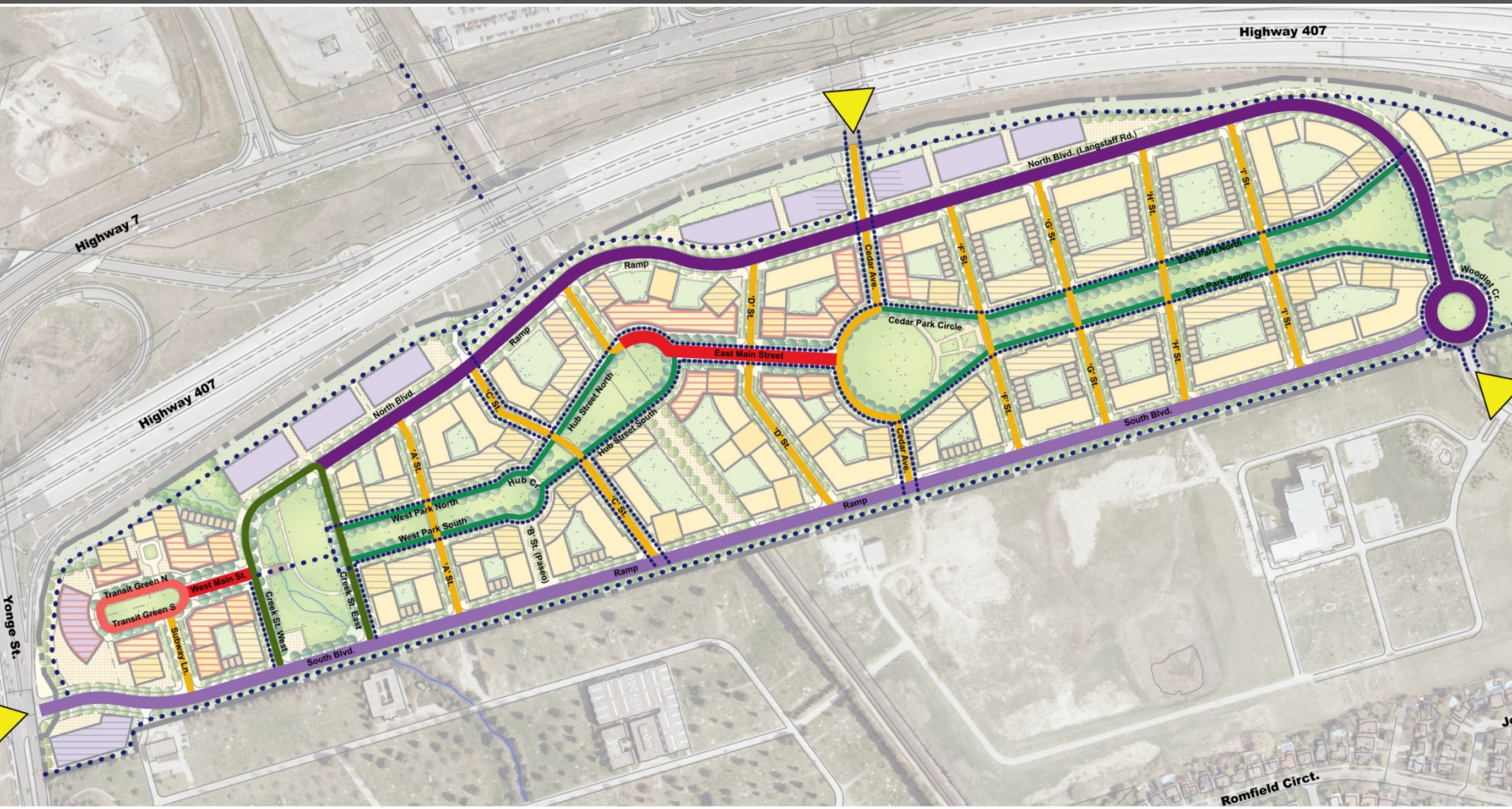
# Transit & Transportation: Integration with Richmond Hill



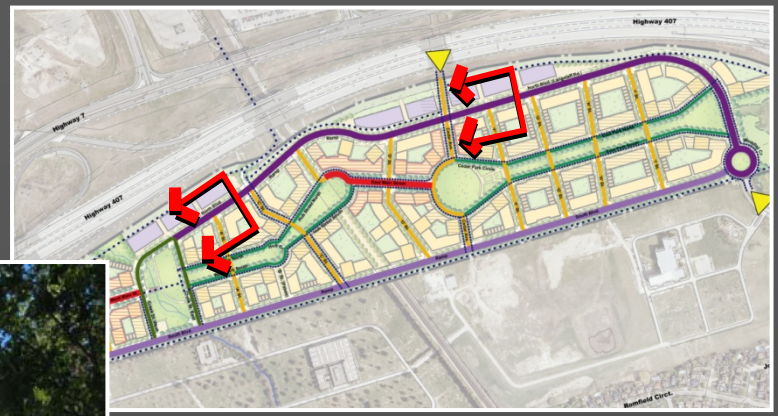
# DSC Presentation

# STREET CHARACTER

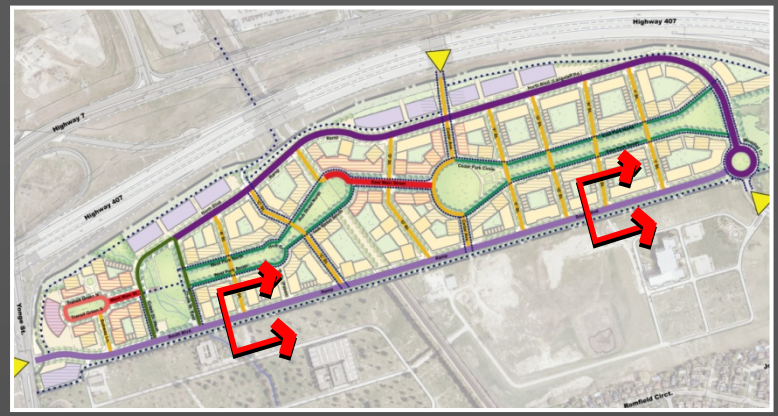
# Traffic and Circulation:
# Project Street Network

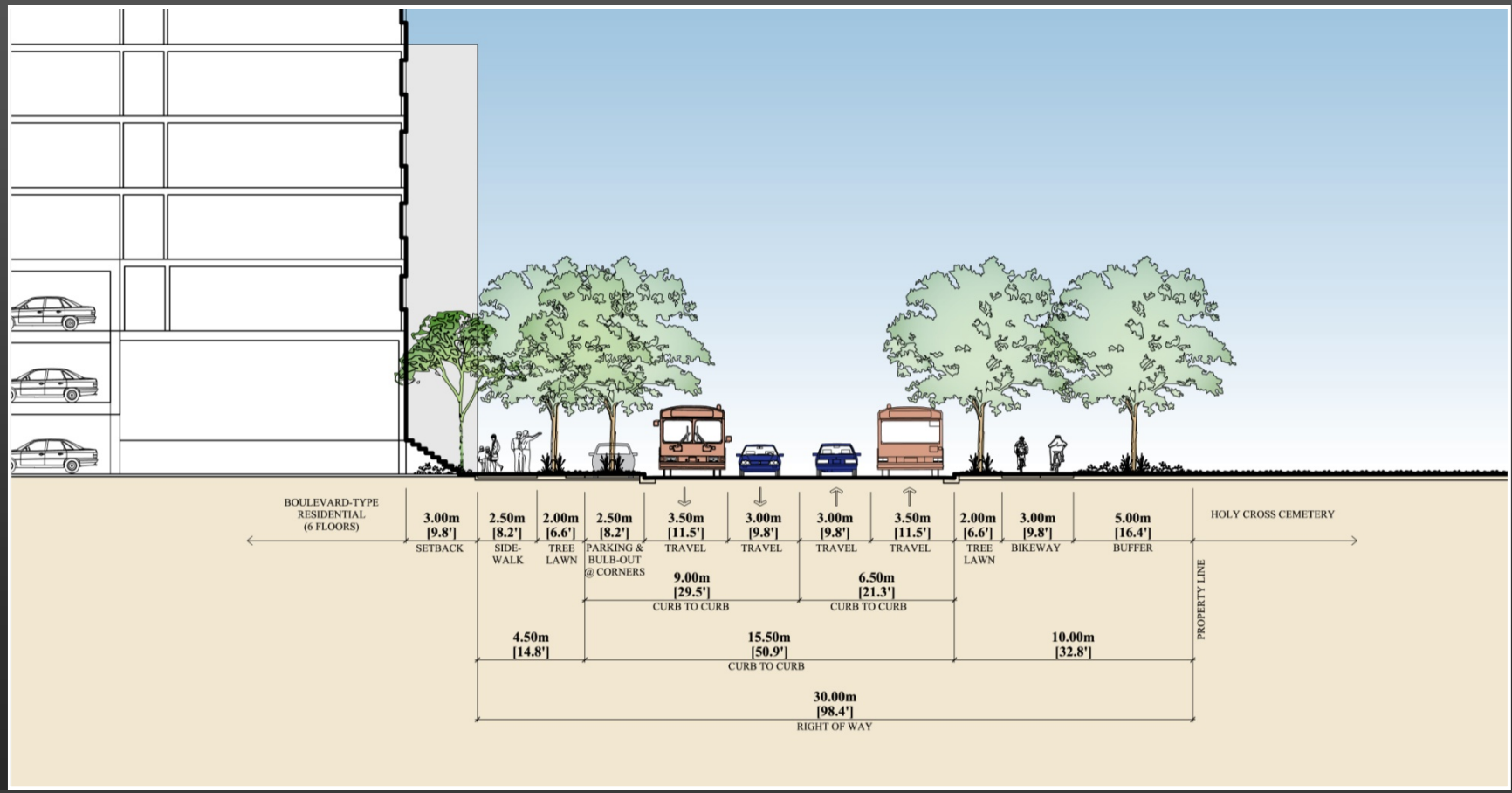


# Street Types:
# North Boulevard

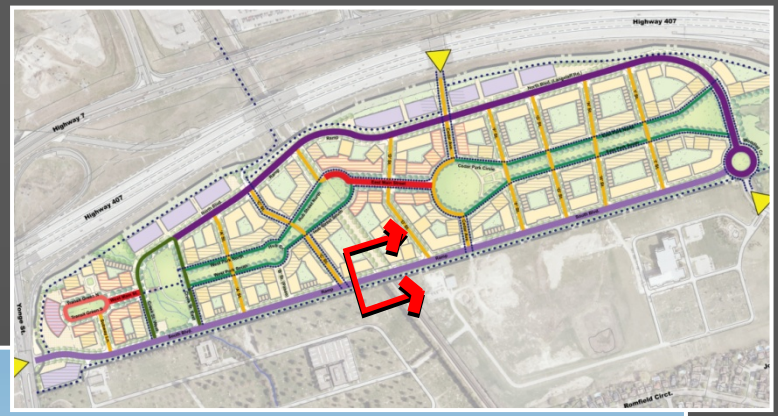


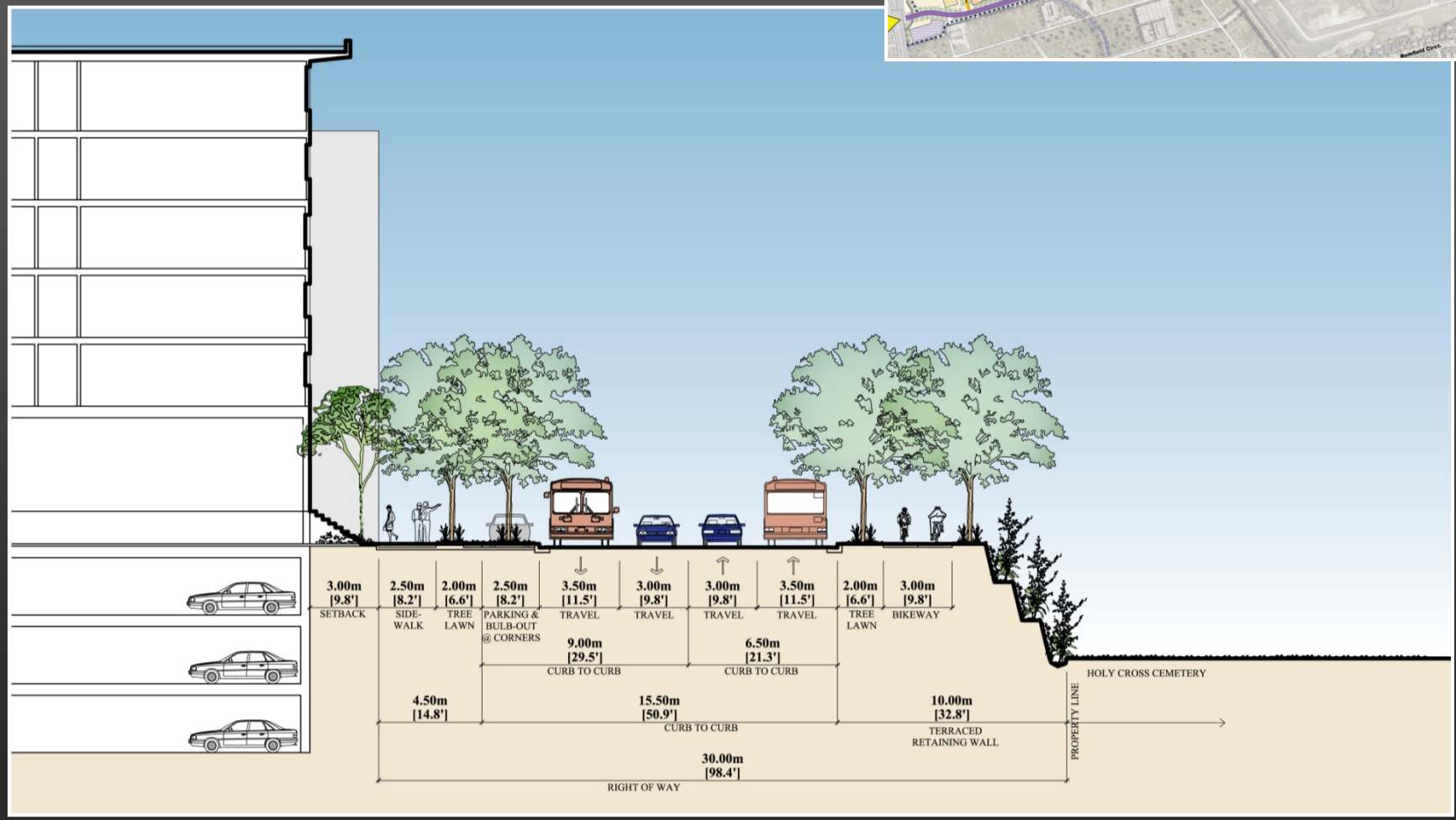

# Street Types: South Boulevard (at grade)



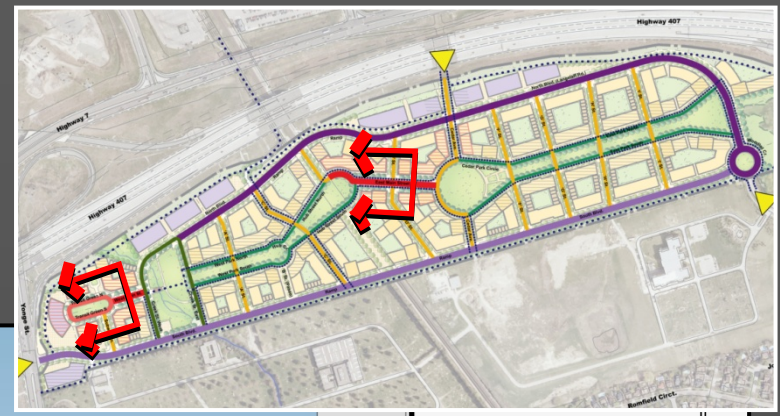



# Street Types:
# "Ramping" Blvd

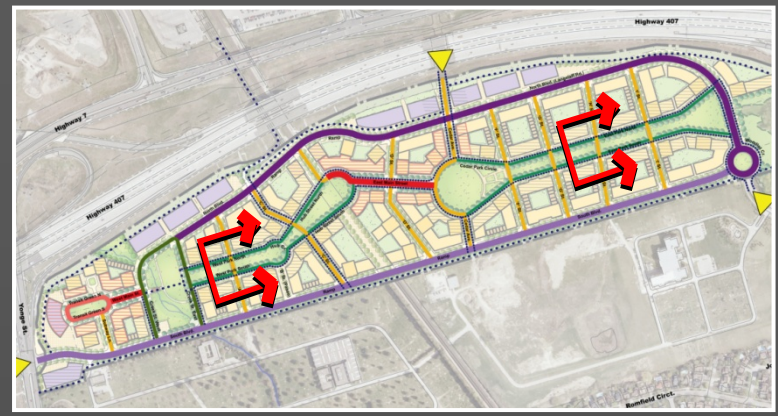


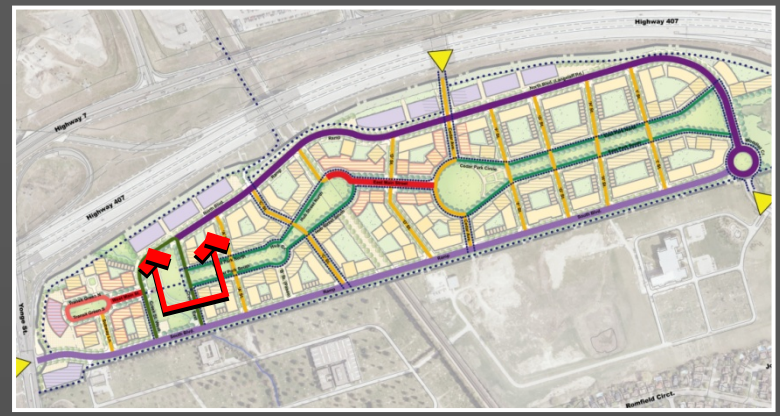
# Street Types:
# Main Streets

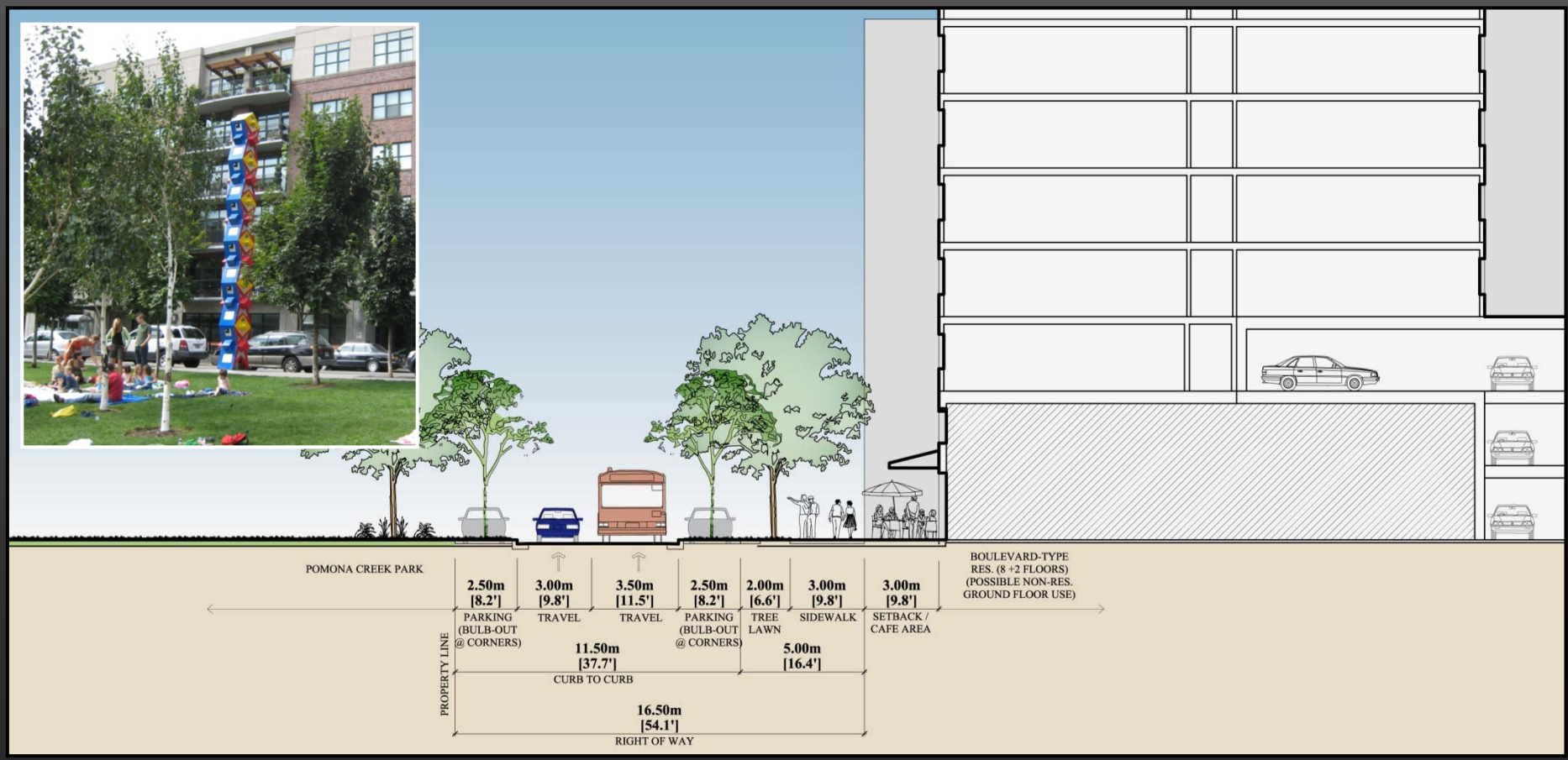



# Street Types: Linear Park Street

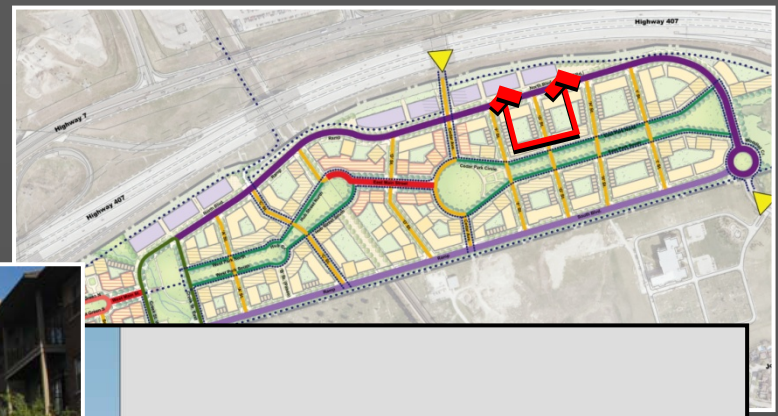



# Street Types:
# Pomona Creek
# One-Way Couplet



# Street Types:
# Local Street

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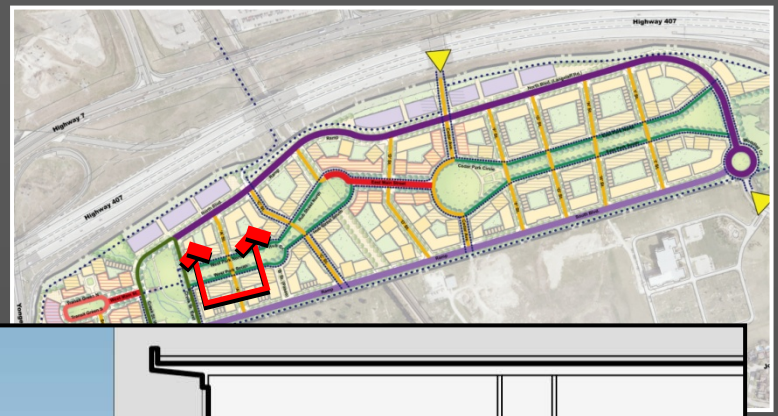
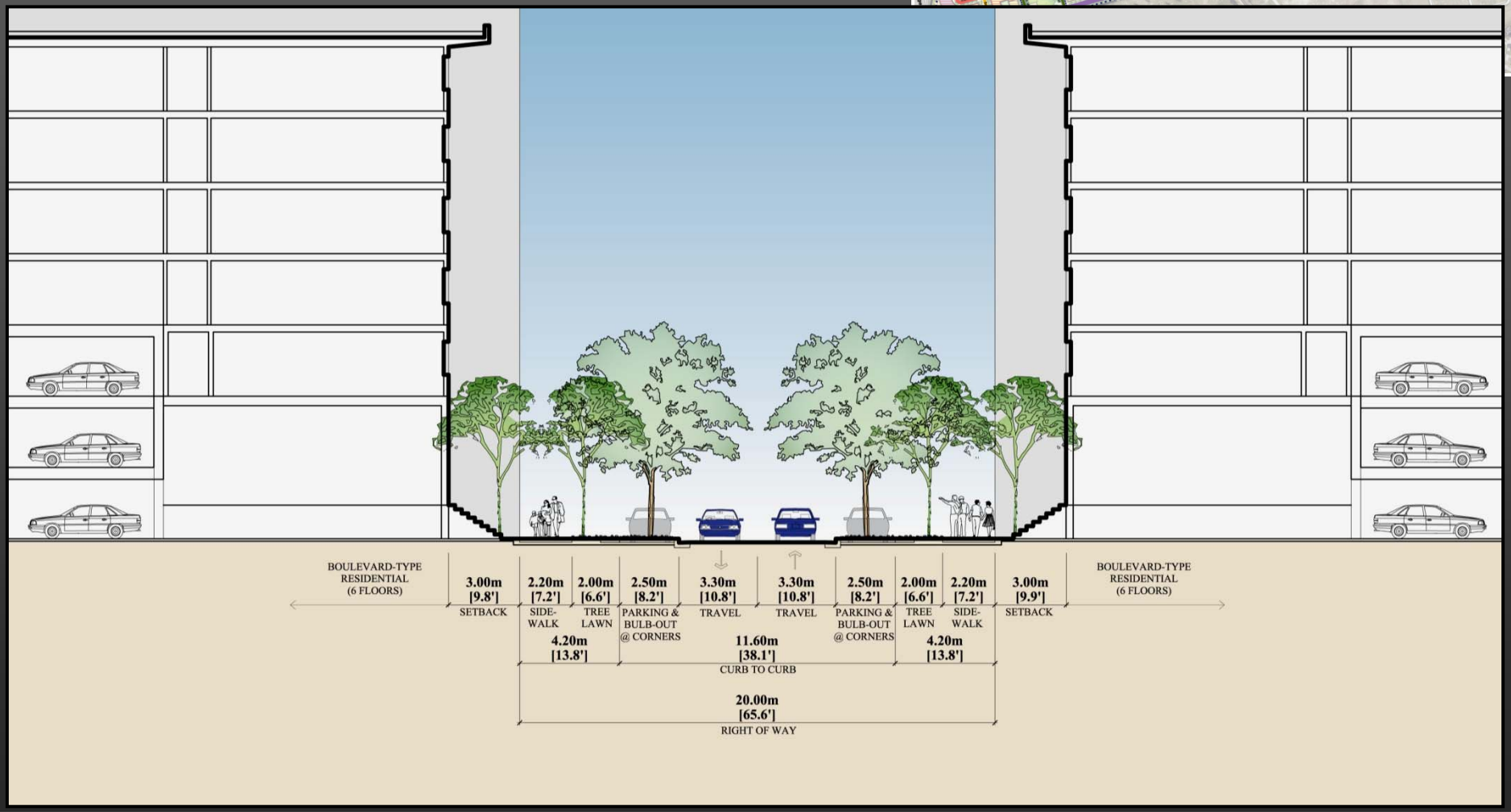
# Local Street

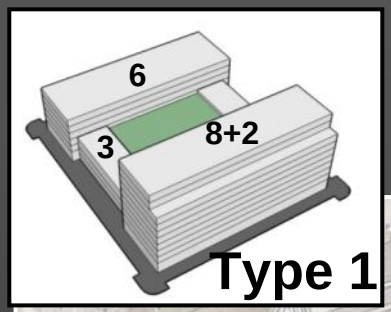


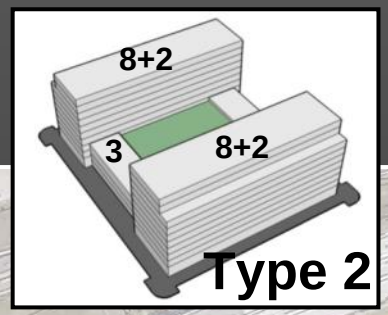



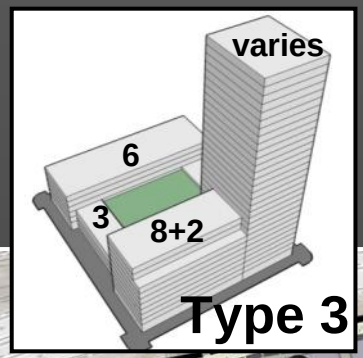
# DSC Presentation

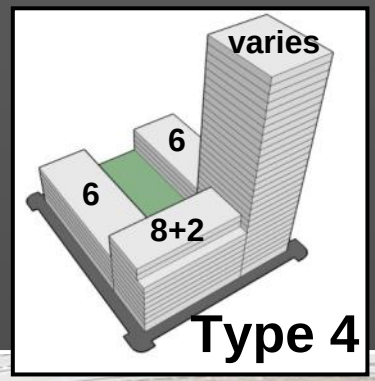
# BLOCK TYPES

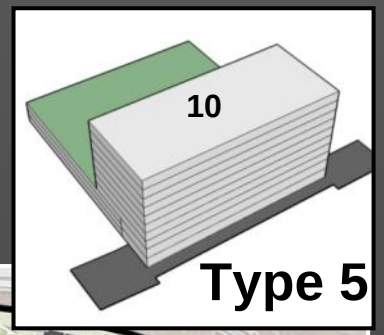
# Overall Project Massing:
# Block Types Keymap

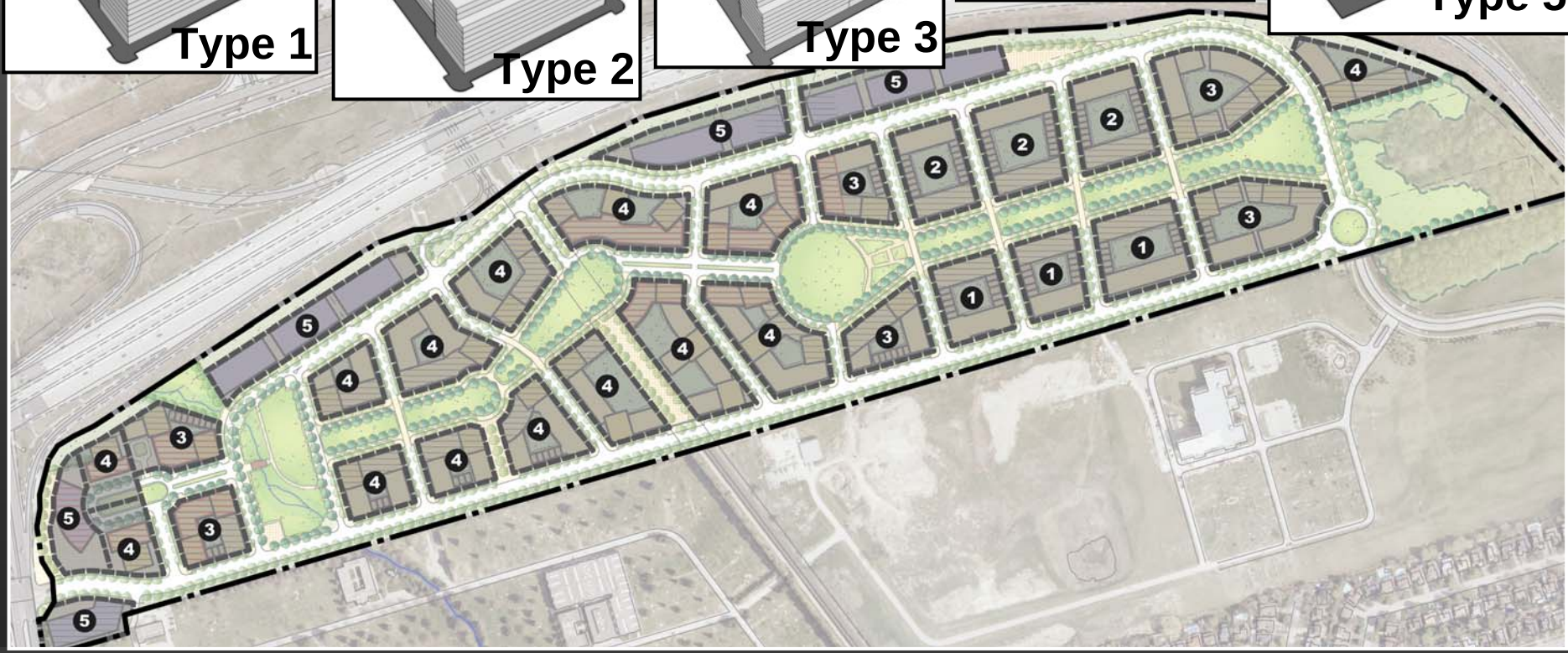


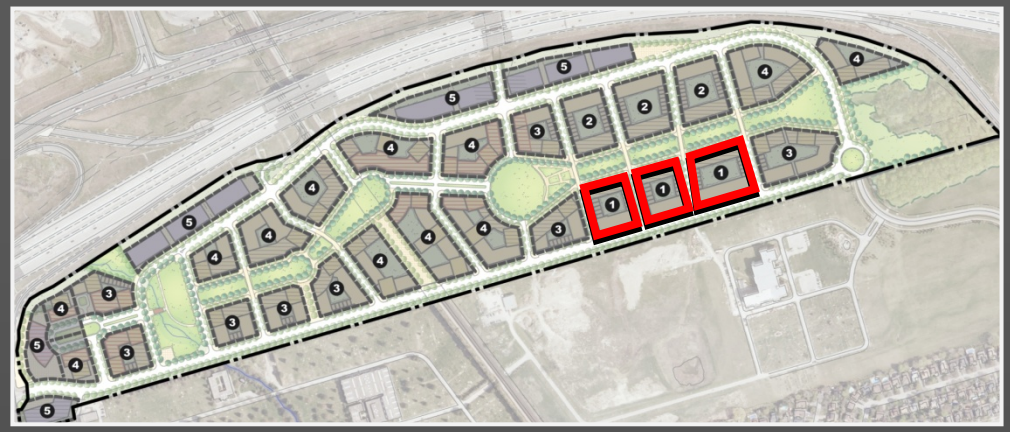



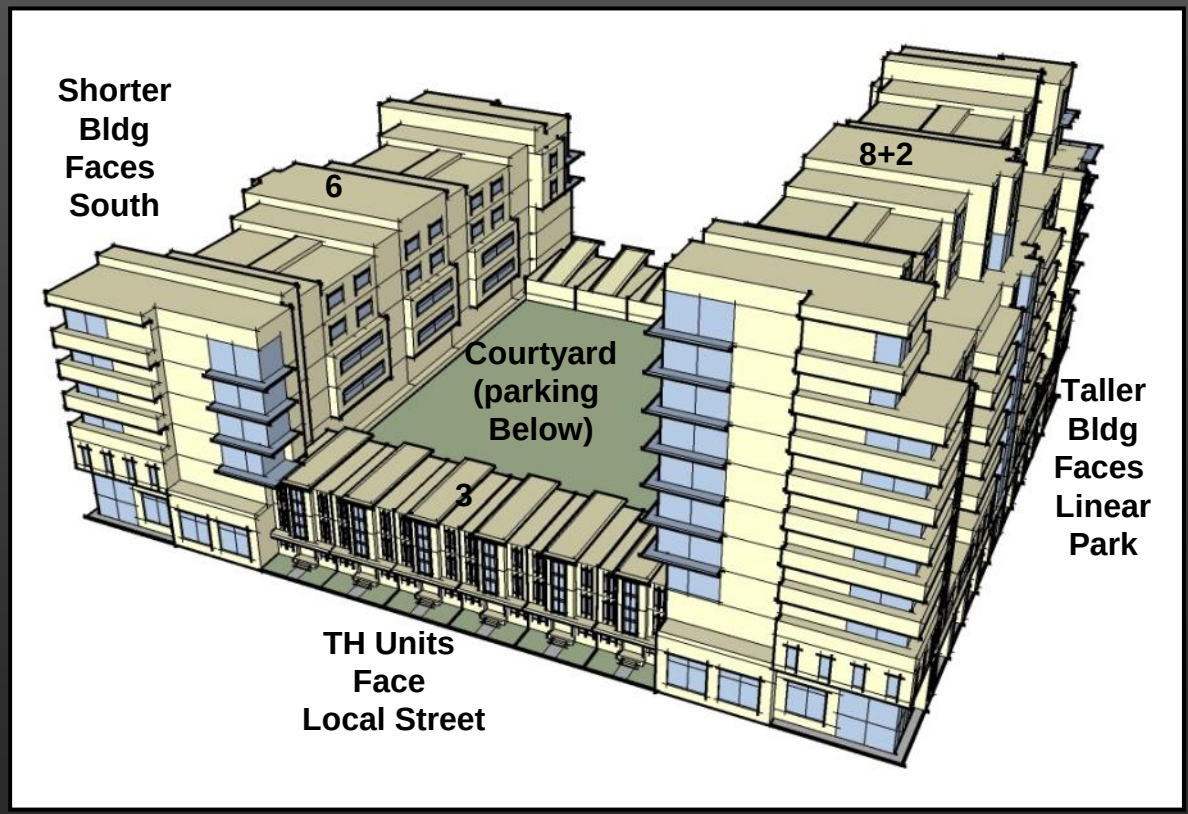



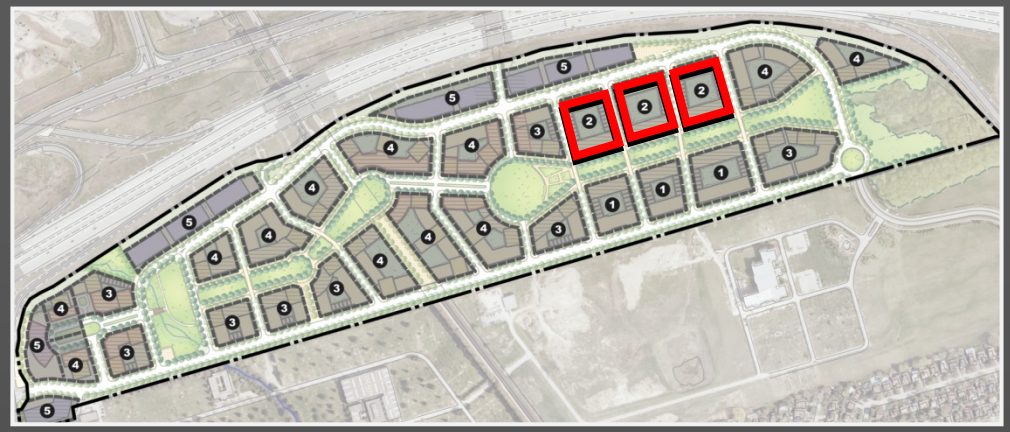
# Block Types: Type 01



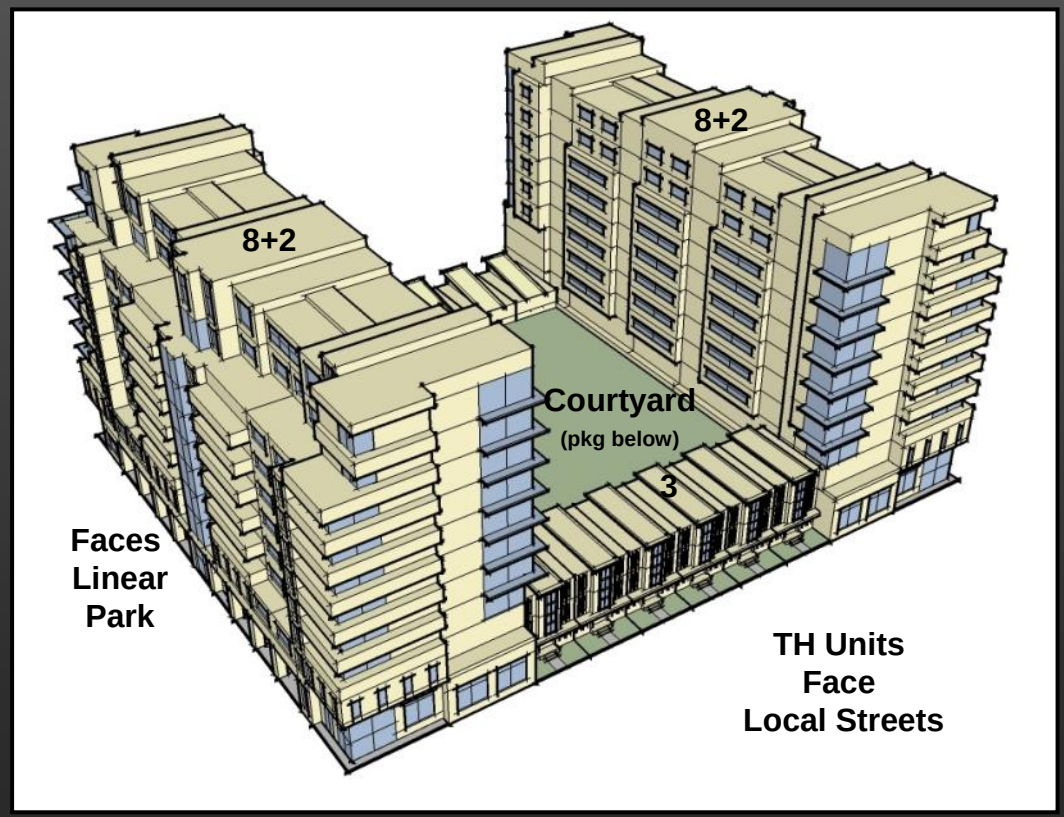
- 8 story base (+ 2 story recessed upper level) faces linear park.
- 6-story bldg faces south (to cemetery)
- Liner townhomes face local streets
- Mid-block private courtyard



# Block Types: Type 02

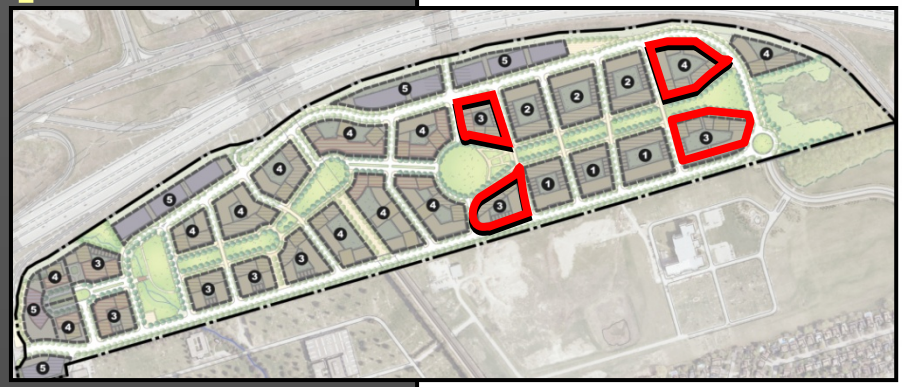


- 8 story base (+ 2 story recessed upper level) faces north and south
- Liner townhomes face local streets
- Mid-block private courtyard
- Embedded or below-grade parking structure



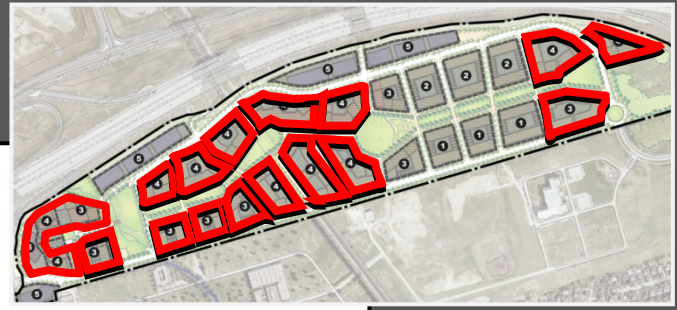
# Block Types: Type 03

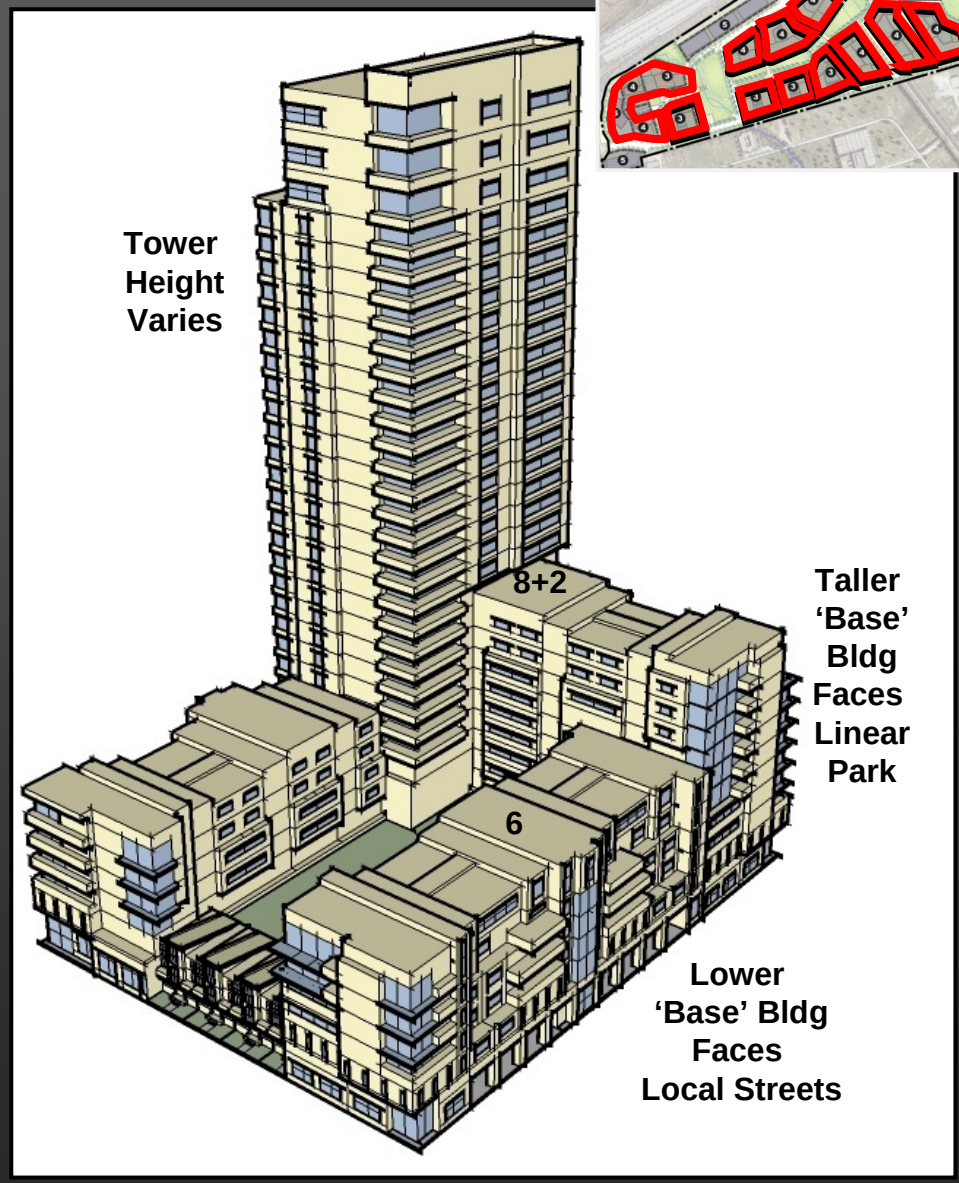
- Combines all Bldg Types.
- Liner townhomes face local streets
- Mid-block private courtyard
- Point Towers (height varies)



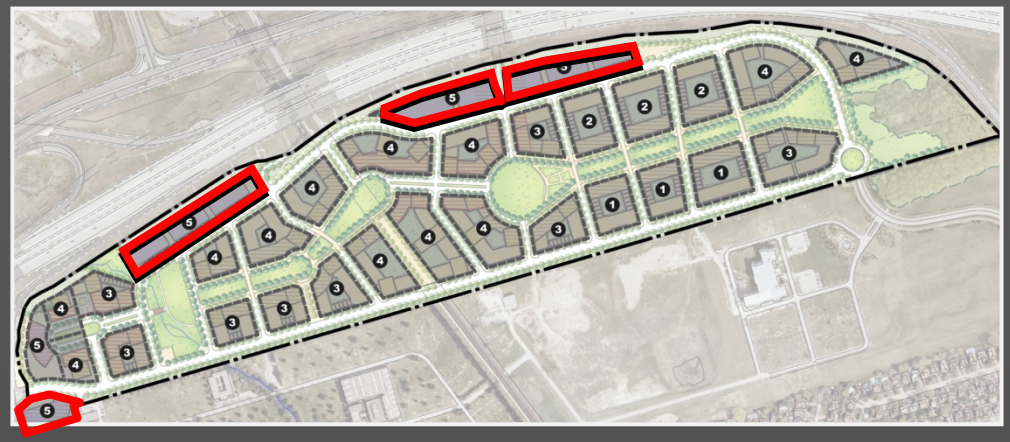
# Block Types:
# Type 04

- Combination of high-rise and mid-rise building types.
- Taller mid-rise bldgs face linear park , lower bldgs face local streets.
- Mid-block private courtyard
- Point towers at some corners (height varies).





# Block Types: Type 05



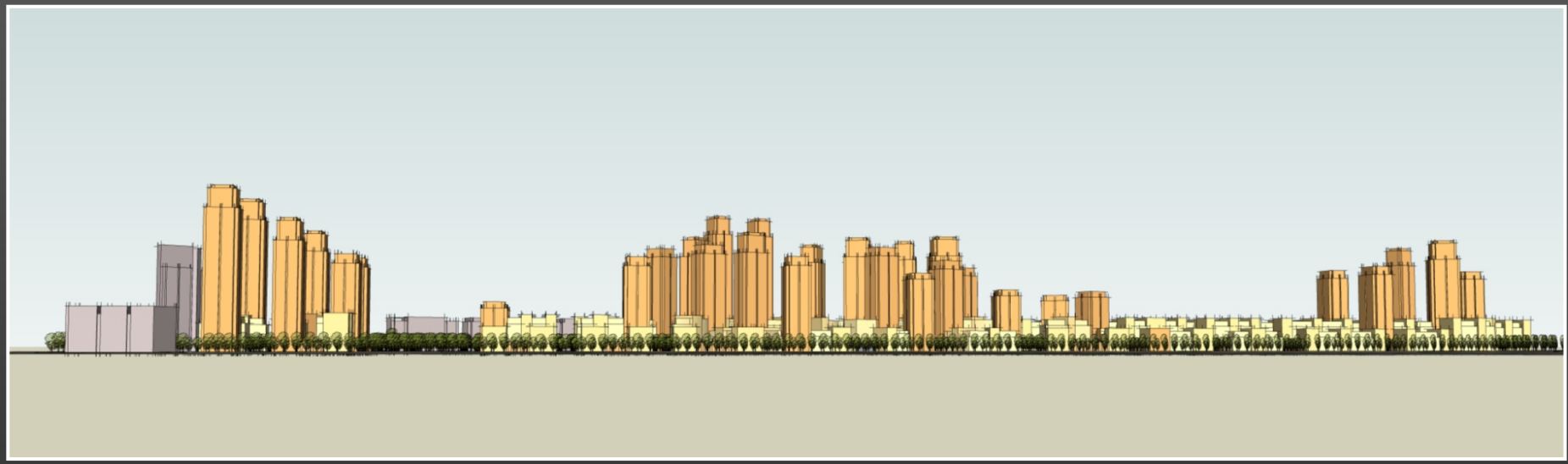
- "Edge" block: for use at perimeter of site.
- Building faces to street.
- Structured parking faces away from street.
- Open space on top of parking structure.

# DSC Presentation

# OVERALL PROJECT MASSING

# Overall Project Massing:
# View from South

# Overall Project Massing: Elevation (From South)

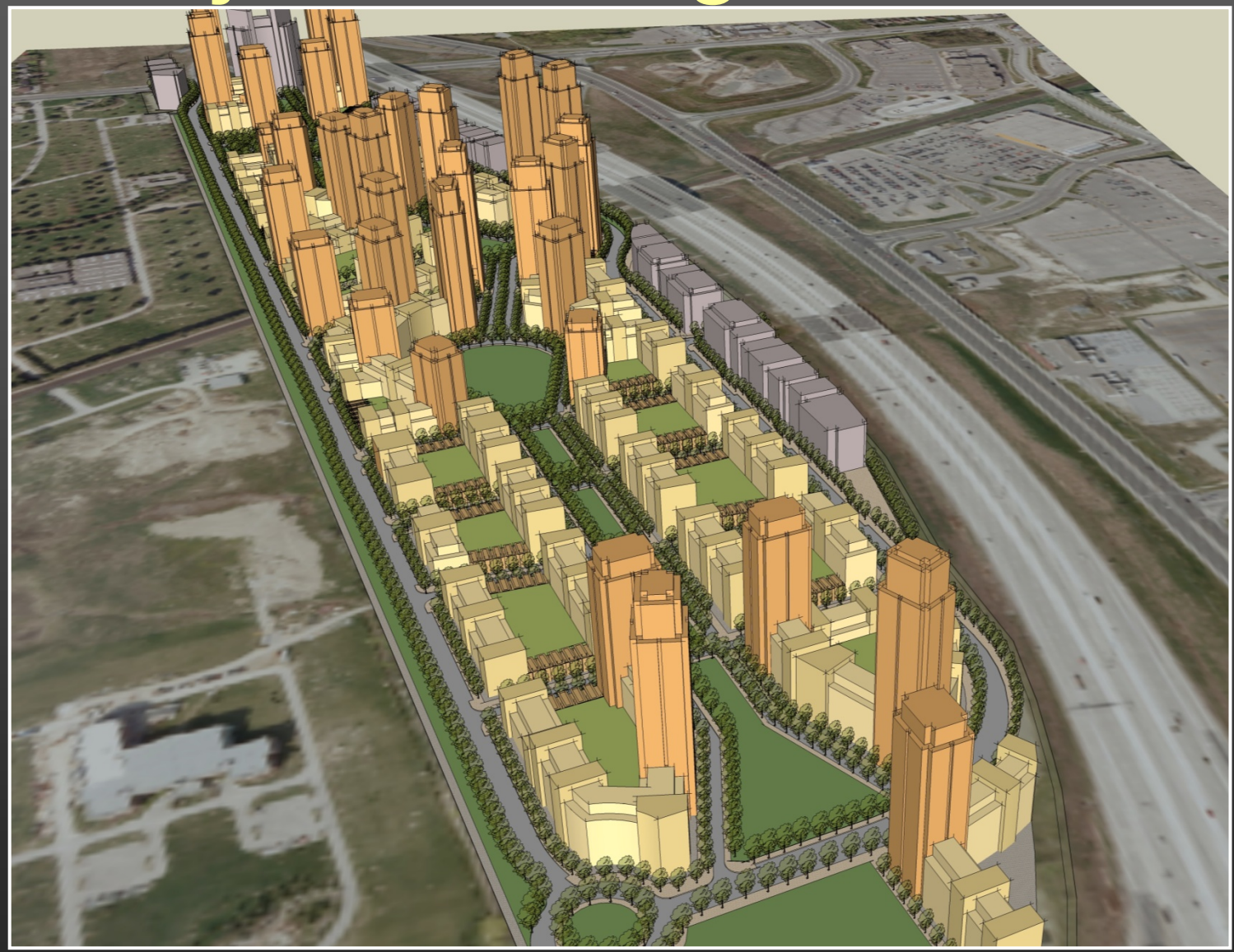


# Overall Project Massing:
# View from South

# Overall Project Massing:
## View Of West

# Overall Project Massing:

## View From East

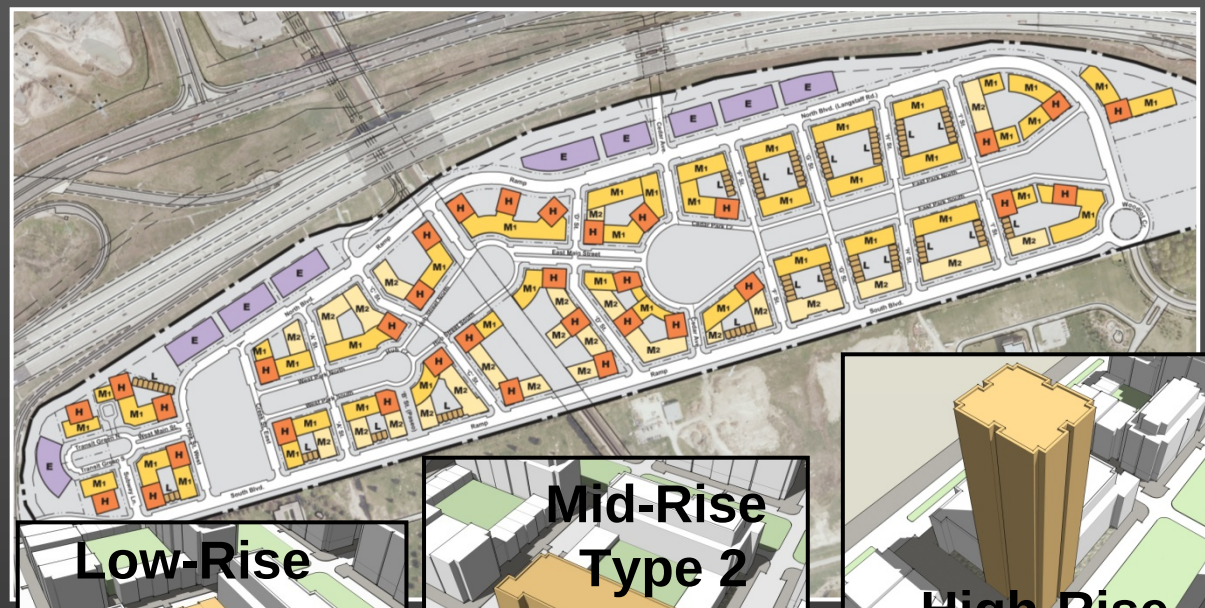


# DSC Presentation

# DESIGN GUIDELINES

# Design Guidelines: Controls on Built Form

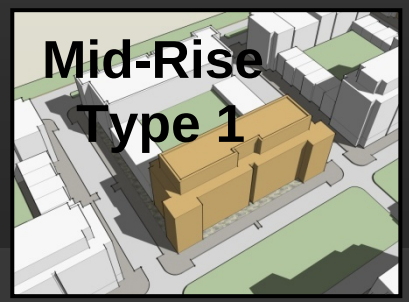
- **Controls will regulate:**
  - Setbacks
  - Bldg Types
  - Bldg Height
  - Tower Placement
  - Land Uses
  - Location of Retail
  - Design for Pedestrians
  - Park Design
  - Street Design

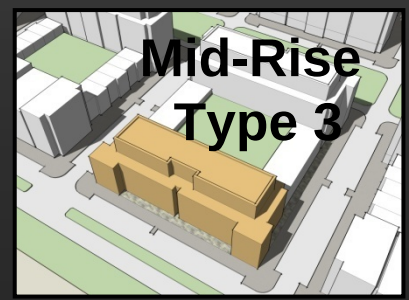


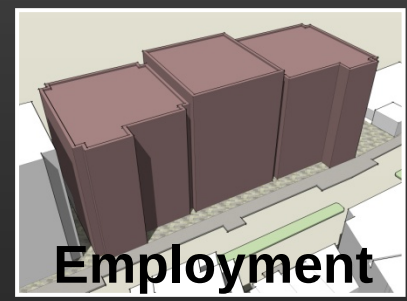






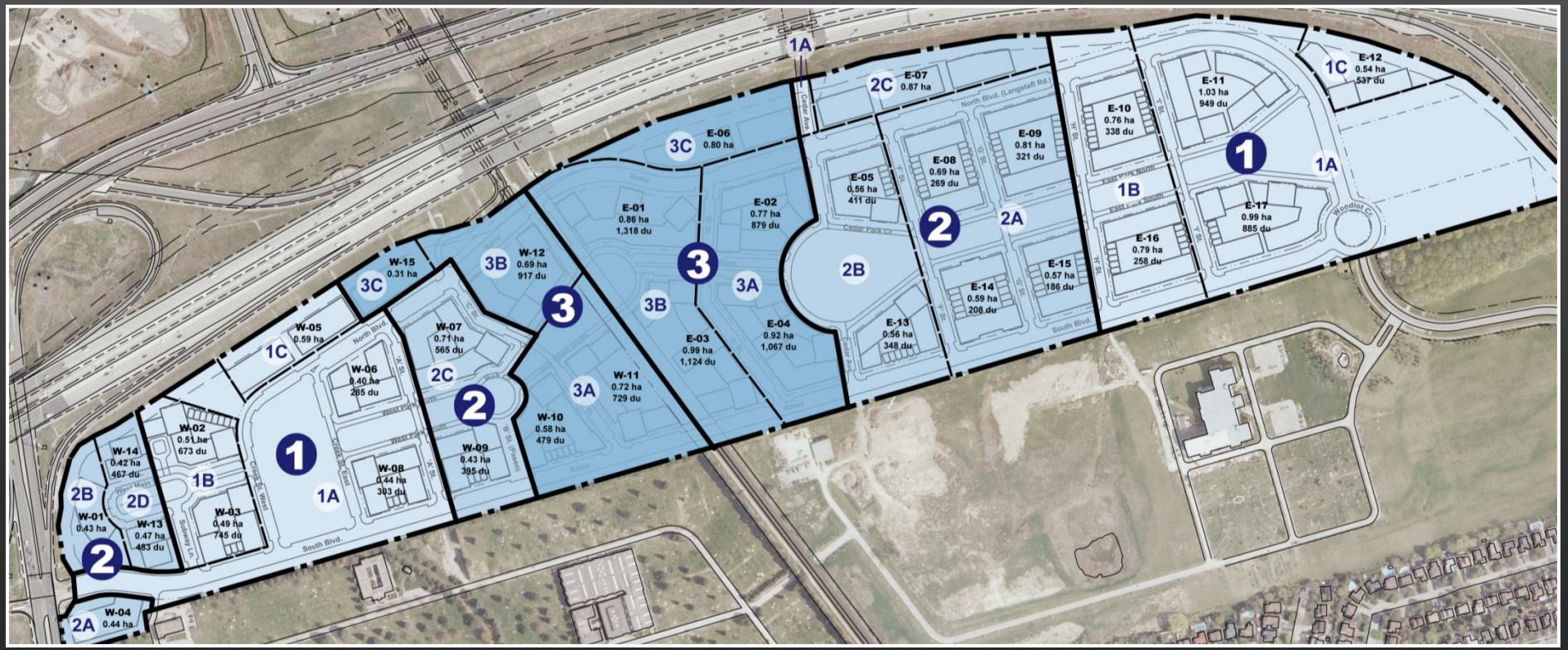



# DSC Presentation

# IMPLEMENTATION

# Implementation: Phasing

- Phasing to be based on land availability, market & infrastructure.
- Development thresholds will insure that development is indeed transit-oriented.



# Phasing:
# Thresholds & Benchmarks

## LANGSTAFF PROJECT PHASING AND (DRAFT) DEVELOPMENT BENCHMARKS

Date = April 1, 2009
**Draft In Progress**: for review and discussion

Refers to "Phasing Diagram" dated March 31, 2009
Prepared by Calthorpe Associates (with input from IBI and MMM Group)

### PROJECT PHASING AND DEVELOPMENT BENCHMARKS

| | | | Internal Criteria | | | | | | | | Extern | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Program | | | | Performance | Infrastructure Elements | | | Infrastruct | |
| | | | Residential | Office | Civic | Open Space | | Transit/Walk/Cycle | Traffic & Circulation | Servicing | Transit/Walk/Cycle | Traffic & Circulation |
| Necessary Prerequisites to Start Phase Three | | | None | 30% of Phase One + Two Office Space Built | 75% of Promised Phase Two Civic Space Built | Phase Two Open Spaces Built as Promised | Phase One + Two: Performing at 45% non-auto Mode Split | Internal transit shuttle with regular & frequent service to Richmond Transit Centre and Langstaff Subway Station | Streets completed as above | All necessary Phase Two servicing complete | VIVA Highway 7 Rapidway built & operational | Cedar Ave Underpass fully operational |
| | | | | | | | | Continuous east-west bike lanes | | ? | 'Mobility Hub' Concourse Built & Operational | Bayview Ave/Hightech/Hwy 7 ramp intersection improvements |
| | | | | | | | | | | | New GO Parking Lot to replace displaced parking | |
| Phase Three | What Gets Built This Phase | West Side | 3,085 units | 16,800 sq m | 6,836 sq m | Hub Green | Achieves 65% non-auto Mode Split | Internal transit shuttle system supports target mode split for transit | C' Street (built-up) | Upgrade wastewater pumping station | Highway 407 Transitway | Bayview Avenue HOV lanes |
| | | | | | Specific Civic Uses & community amenities this phase = ? | Linear Park East (west of 'A' Street) | | | North Blvd (ramping bridge between 'A' Street and CNR, possible co-gen facility underneath) | Cisterns (on each block) | | |
| | | | | | Elementary School | 50%: Hub Green Park deck over CNR | | | Hub Streets North and South, These are built-up and ramp up to a deck bridging over the CNR property | Relocation of Regional sub-trunk watermain | | |
| | | | | | | | | | South Blvd between 'A' Street and CNR. This street is a built-up ramp up and over the CNR property. | Retaining wall/slope treatment between South Blvd and Cemetery | | |
| | | | | | | | | | 50%: deck over CNR | | | |
| | | East Side | 4,389 units | 34,744 sq m | 7,822 sq m | Hub Green Crescent | Achieves [illegible] Mode Split | Internal transit shuttle system supports target mode split for transit | East Main Street | Cisterns (on each block) | Highway 407 Transitway | ? |
| | | | | | Specific Civic Use(s) = ? | 50%: Hub Green Park deck over CNR | | | South Blvd between Cedar Street and CNR. This street is a built-up ramp up to and over the CNR property. | Relocation of Regional sub-trunk watermain | Ped/bike overpass to Silver Linden | |
| | | | | | Elementary School | | | | 'D' Street | Retaining wall/slope treatment between South Blvd and Cemetery | | |
| | | | | | | | | | North Blvd (btwn Cedar & CNR). This Street is built-up and ramps up to and over the CNR property. | Remove wastewater pumping station installed in PH 2E | | |
| | | | | | | | | | 50%: deck over CNR | Upgrade wastewater pumping station in Ph 3W to final configuration | | |
| | | | 7,474 units | 51,544 sq m | 14,658 sq m | | | | | | | |
| | | Total | | | | | | | | | | |
| | | West | 6,042 units | 136,020 sq m | 11,878 sq m | | | | | | | |
| | | East | 9,099 units | 81,824 sq m | 19,585 sq m | | | | | | | |
| | | BOTH | 15,140 units | 217,844 sq m | 31,463 sq m | | | | | | | |

# DSC Presentation

# PROPOSED DEVELOPMENT PROGRAM

# Overall Project Massing:
# Program at Buildout:

- Parks = 15% of site (23% of site is open space)
- Res = 15, 000 units
- Retail = 45,000 m2
- Office = 220,000 m2
- Civic = 30,000 m2 (including 2 schools)

# Overall Project Massing:
# Program at Buildout:

- **Jobs**
  - **Office = 15,560**
  - **Retail = 860**
  - **Civic = 340**
  - **Home-based = 750**
  - **Total 17,510**

- **Gross site density = 320 du/ha**

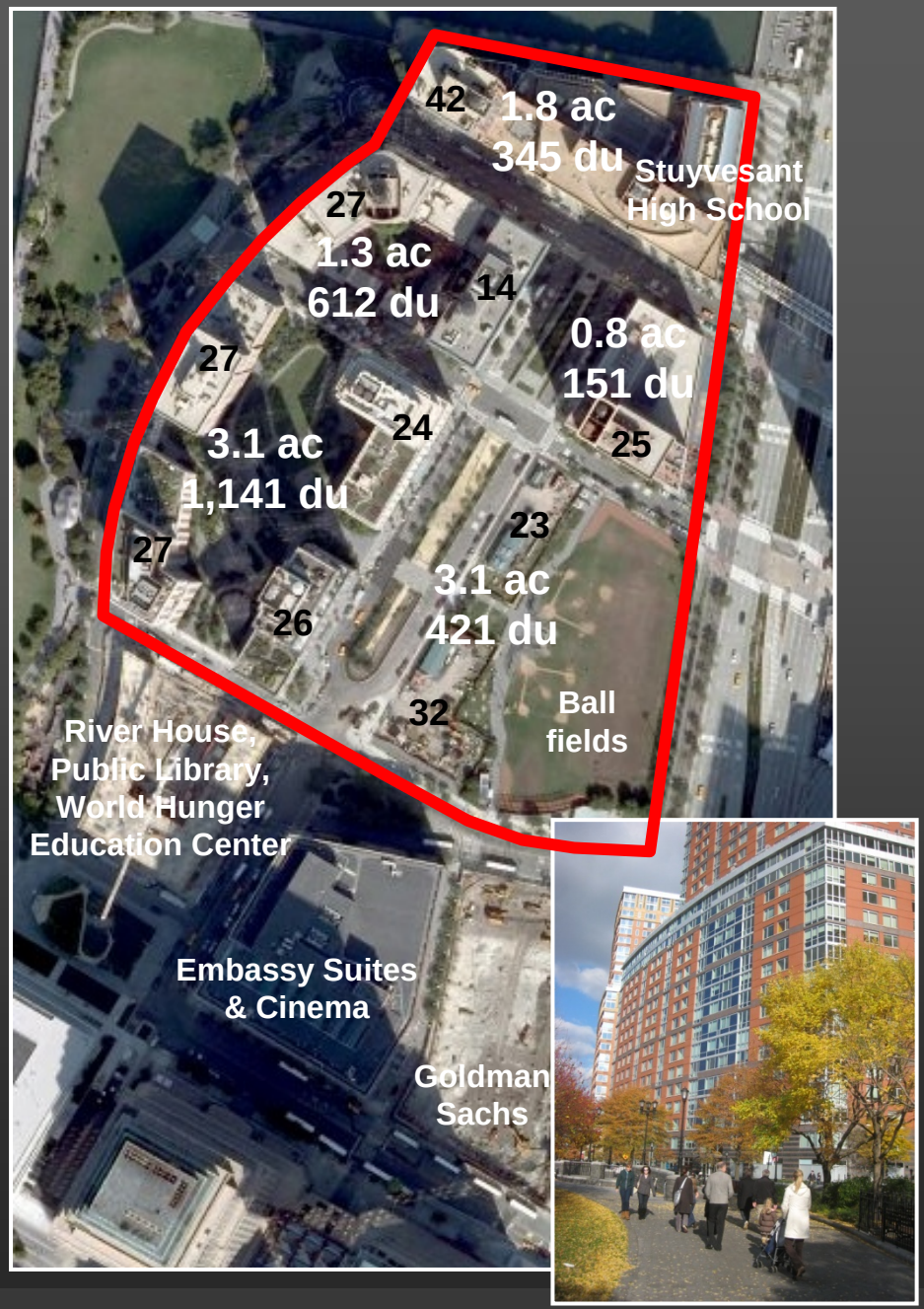
  **= 130 du/ac**

**1,000 persons + Jobs**

**Per hectare**

# Case Studies: Battery Park City

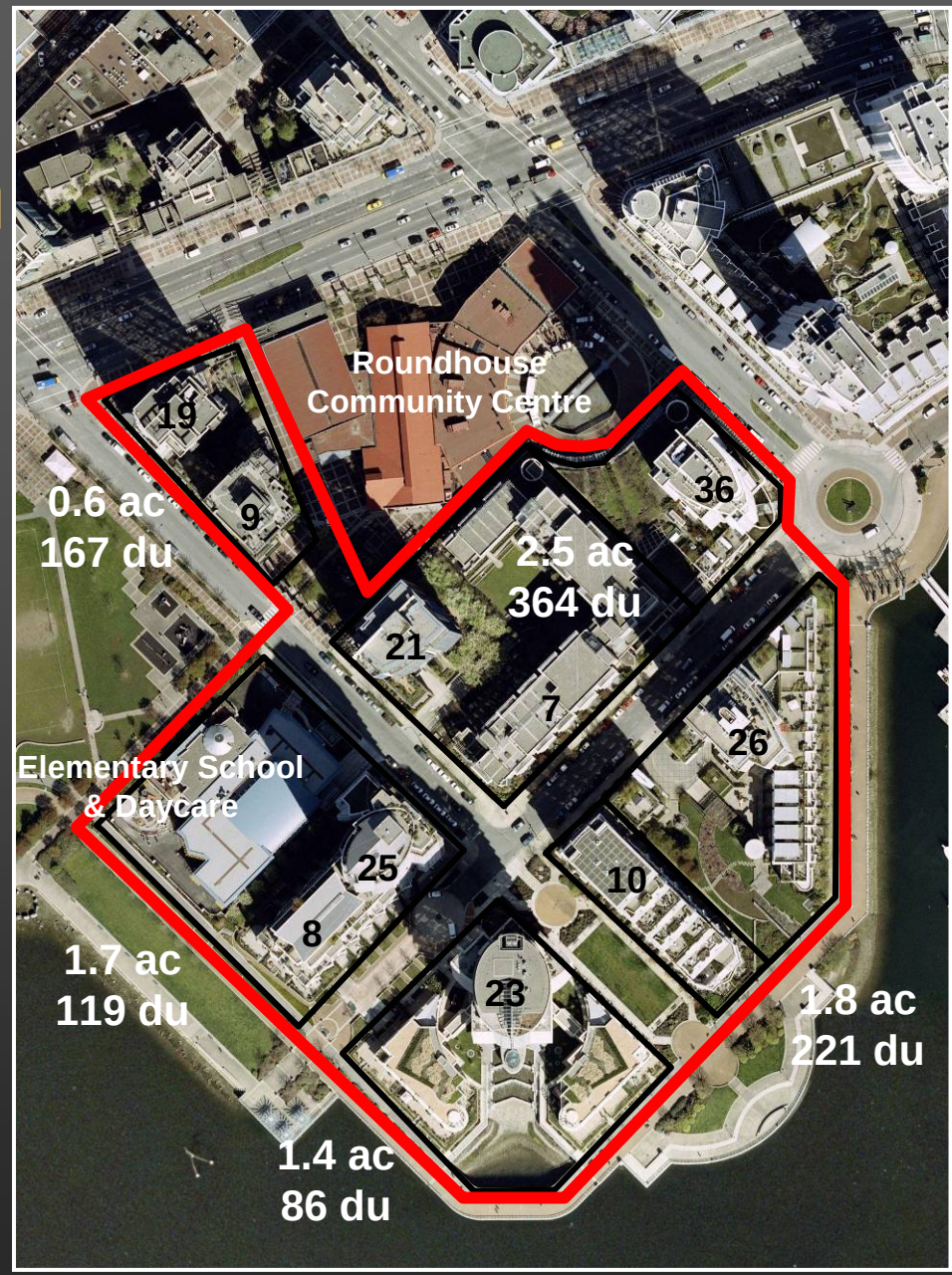
- Sample area of North Neighborhood (outlined in red): 2,670 units
- Approximately 15.5 acres
- Gross density for this area = 170 dwelling units/acre



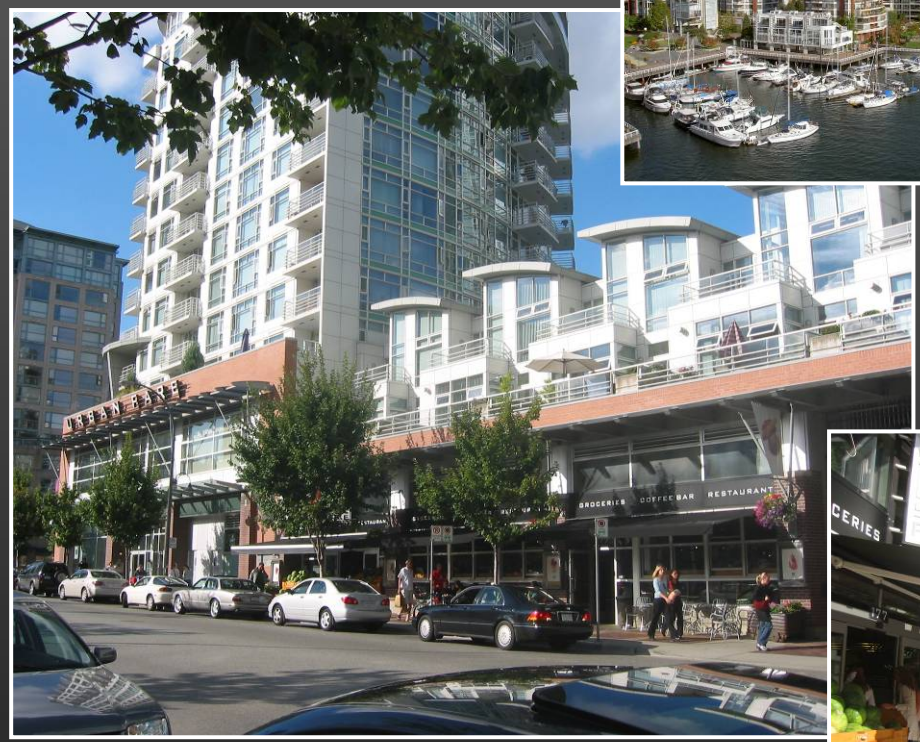
# Case Studies:
# Battery Park City


# Case Studies: False Creek North

- The Roundhouse Area consists of high and mid-rise res, parks, and a community centre that includes a theater, art gallery, classrooms and a day-care center.
- Approximately 960 units
- Approximately 10 acres
- Gross Residential Density = 96 dwelling units/acre



# Case Studies:
# False Creek North




# DSC Presentation

# SUSTAINABILITY

# Environmental Sustainability: District & Neighborhood Systems

- Utilize state of the art utilities and servicing
- Cogeneration Plant and District Heating system
- Review feasibility of alternative waste treatment (e.g., anaerobic digesters)
- Integrated Solid Waste Recycling

# Sustainability: Envac (Automated Waste Collection)

- Underground network for transportation of municipal and commercial waste.

- Where to install: central courtyards, next to playgrounds, bike sheds, gardens.

# Sustainability: Building Systems

- Green Roofs
- On-site waste and water recycling
- Wind and solar capture
- Passive heating and cooling

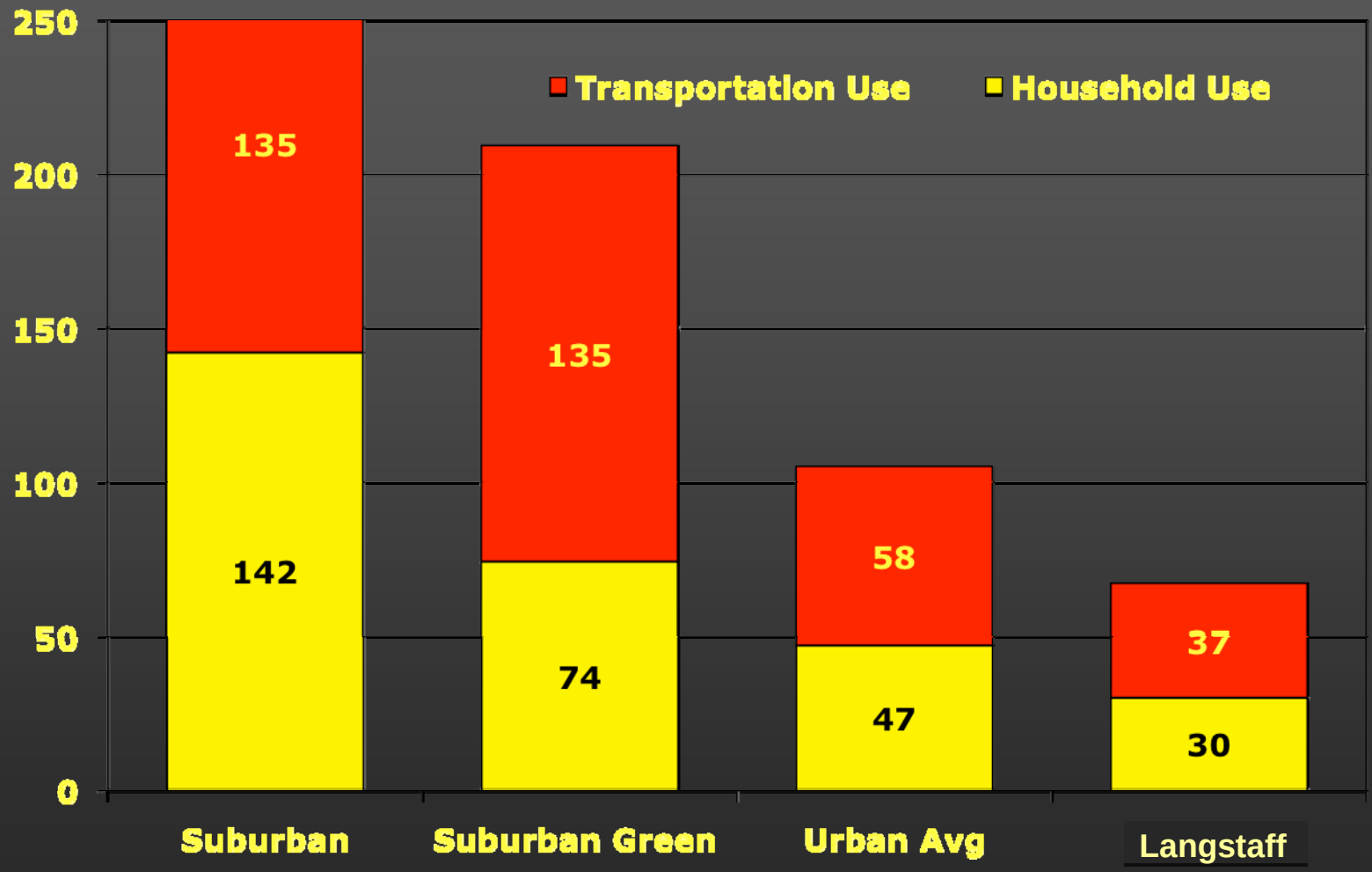
# Sustainability: Other Aspects

- Heritage Buildings
- Dark Skies
- Bird-Friendly Design

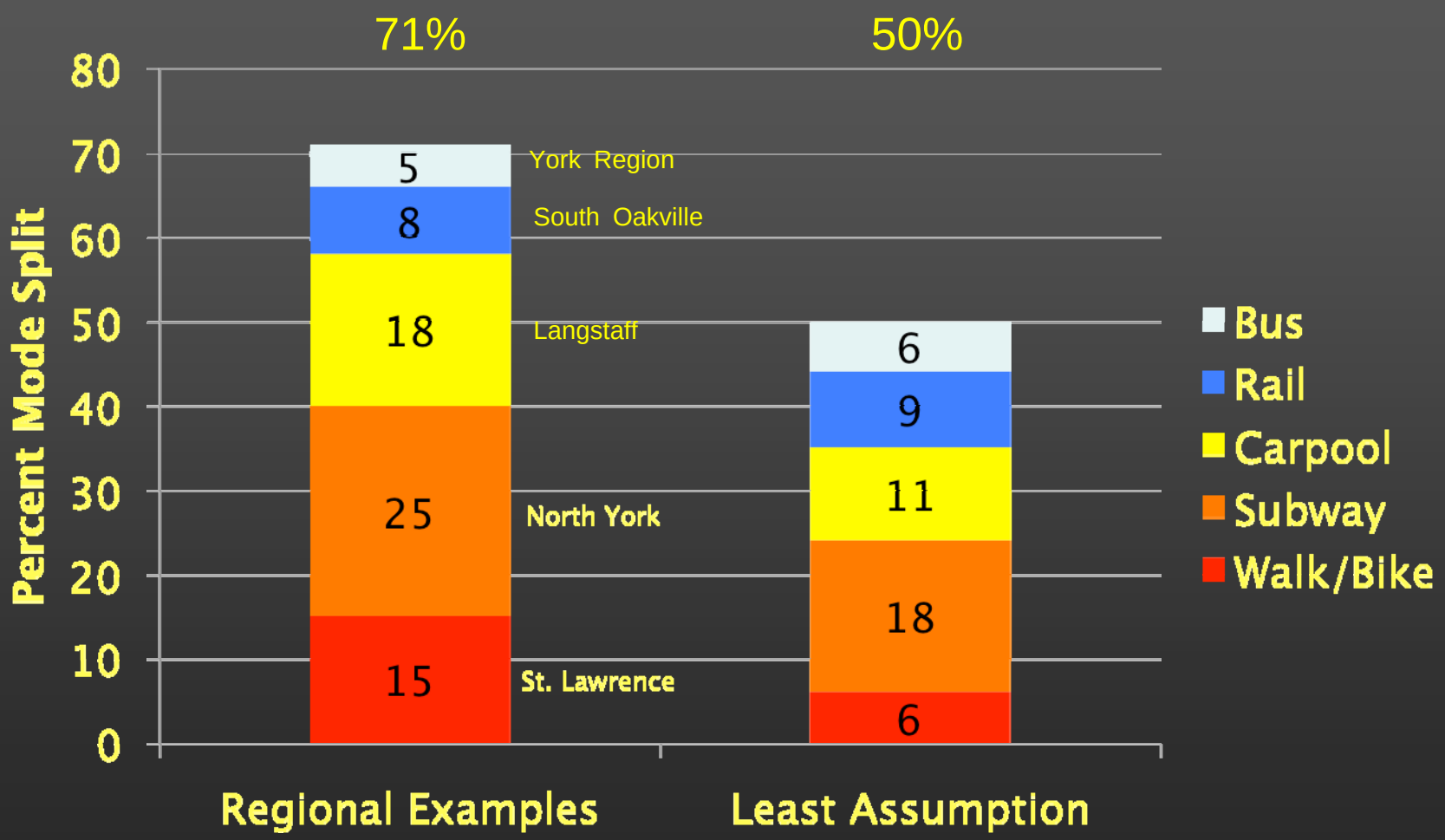
# THINK GLOBALLY

# ACT REGIONALLY

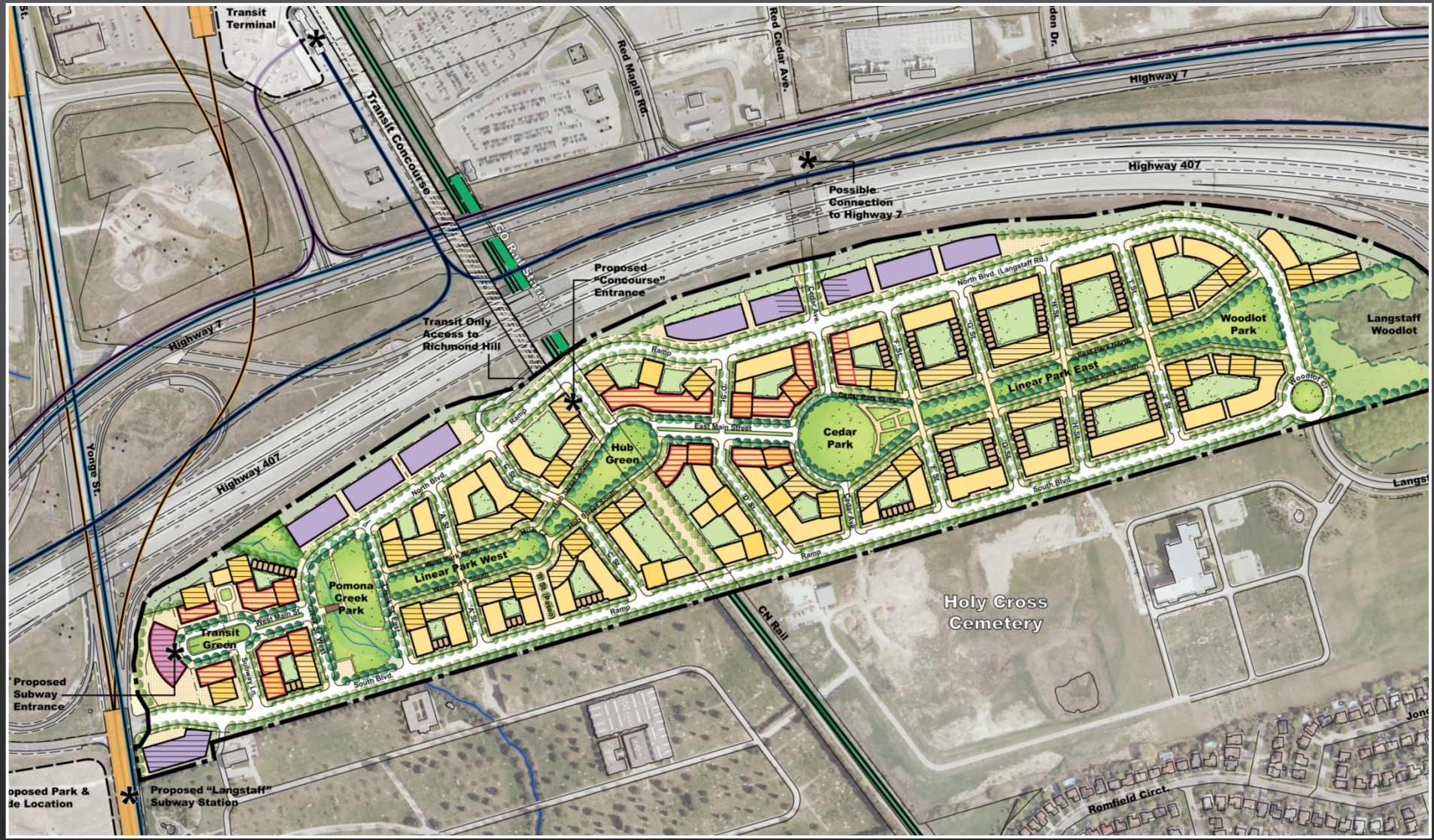
# Total Energy Consumption Per House (million BTU per year)



# Non Auto Mode Split



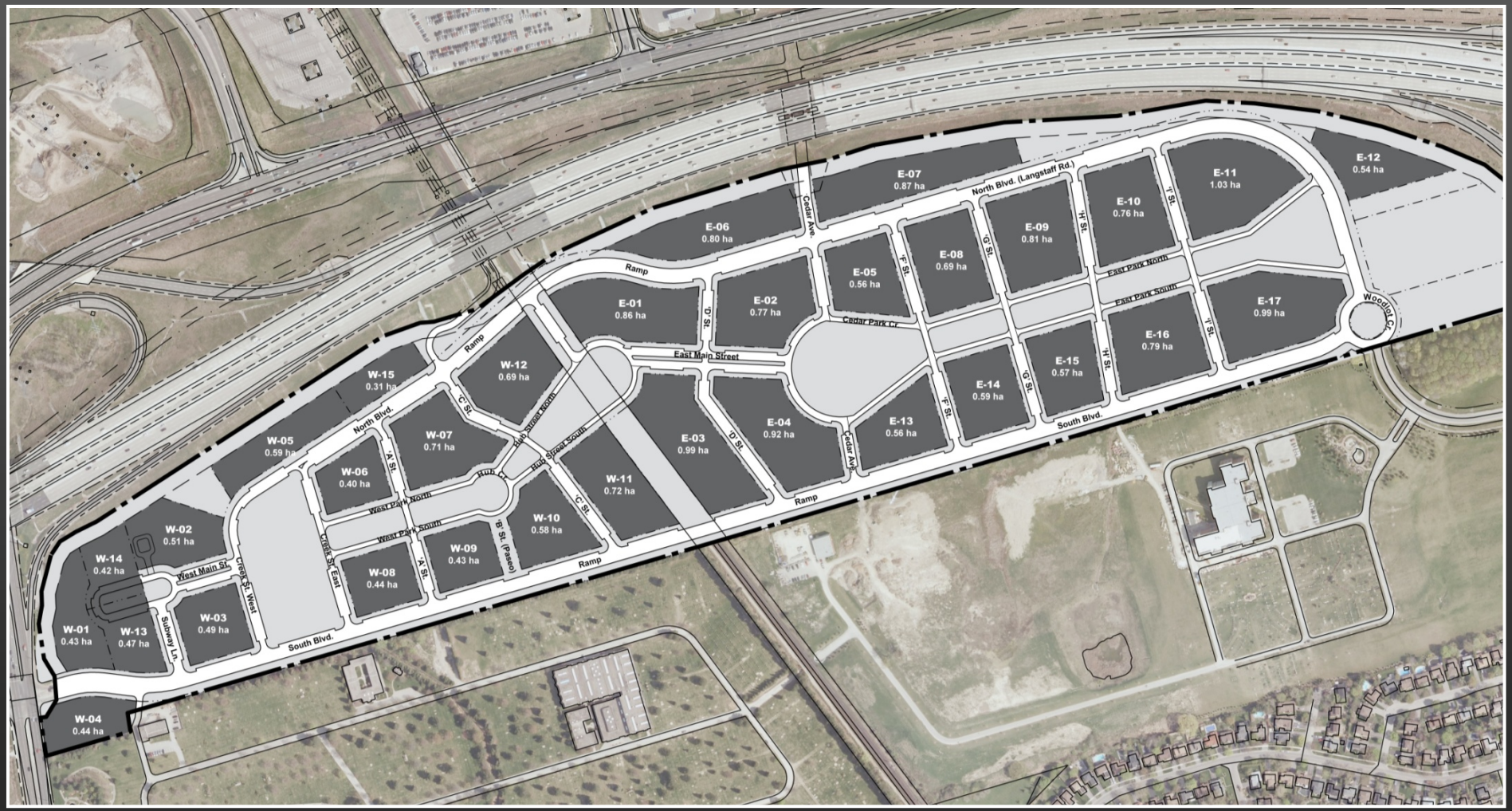
# DSC Presentation



# DSC Presentation

# . . .Next Steps

- **Wednesday April 8, 2009 – Agency Open House**
- **May 19th, 2009 – Calthorpe Presentation of Final Plan to Development Services Committee**
- **June 2009 – Staff Report to Development Services Committee**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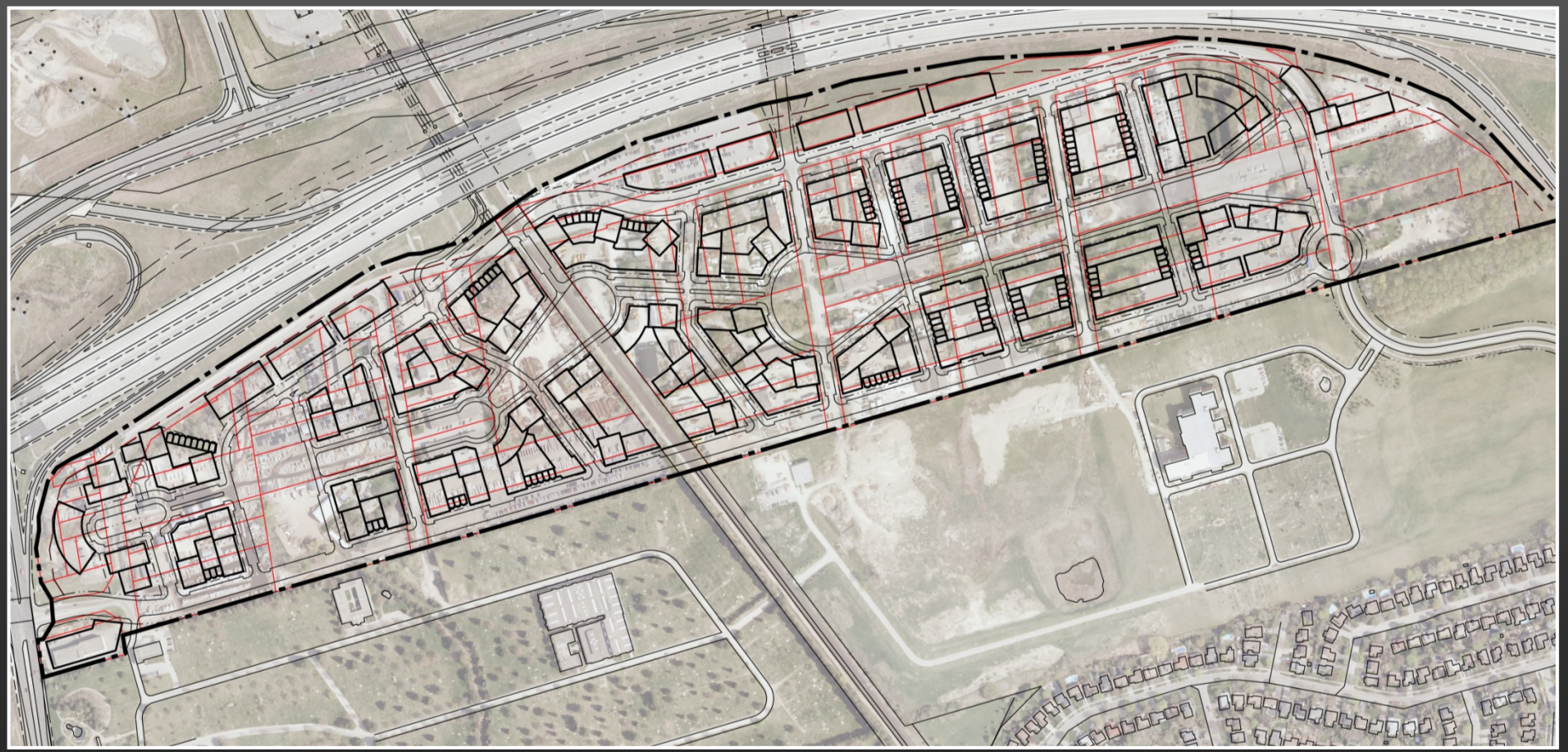
East Main Street
East Park North
East Park South
West Park North
West Park South
South Blvd.
Cedar Park Cr.
Cedar Ave.
High Street North
High Street South
Ramp
West Main St.
Creek St. East
Creek St. West
Subway Ln.
'A' St.
'B' St. (Passo)
'C' St.
'D' St.
'F' St.
'G' St.
'H' St.
'I' St.
Woodlot Cr.

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