

Reinventing Kendall Square for the 21st Century

Vision and Framework



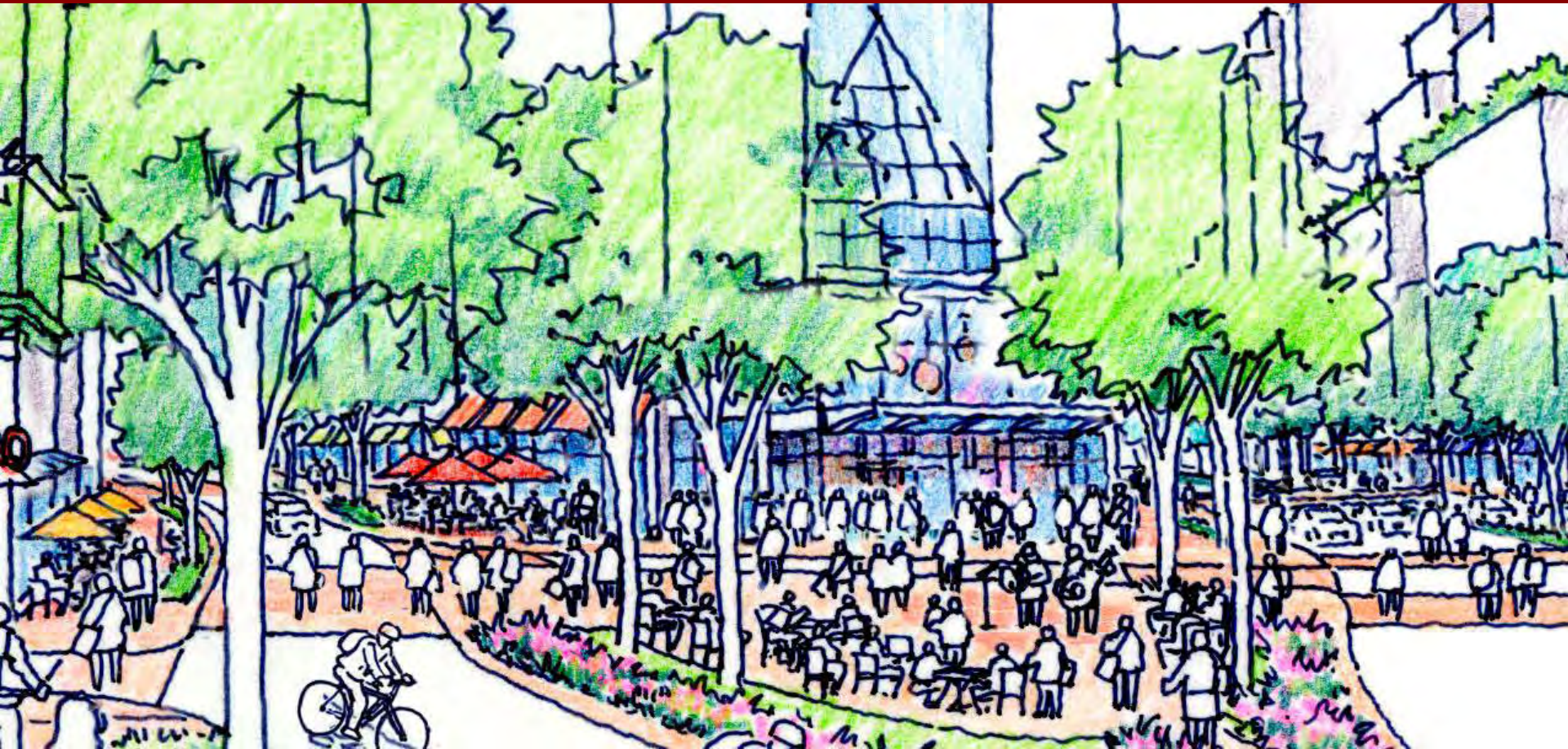
PUBLIC MEETING
APRIL 10, 2012



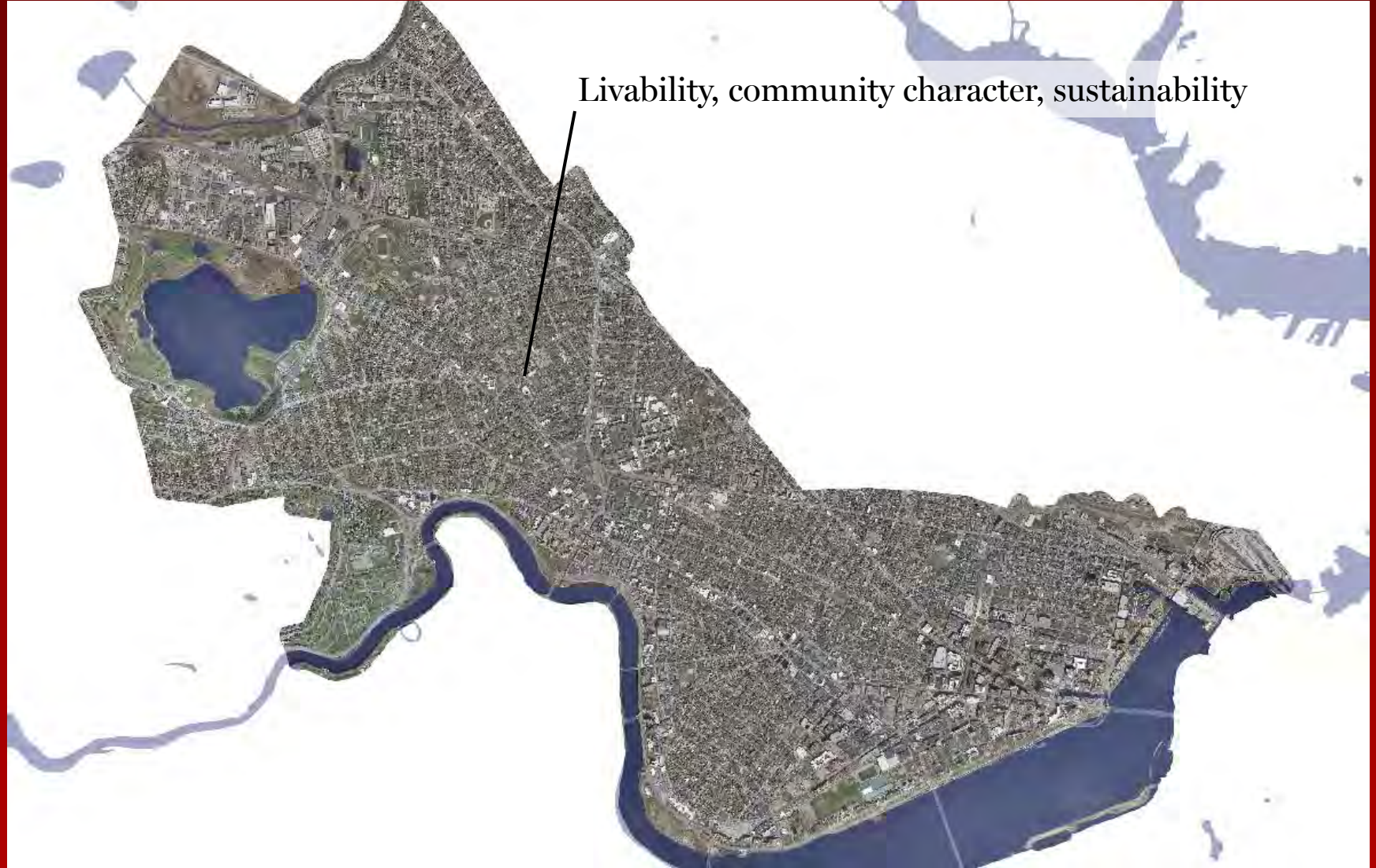
urban design/planning study for
the **central** and **kendall square area**

Agenda

- Vision
- Framework
- Discussion



Values: Cambridge



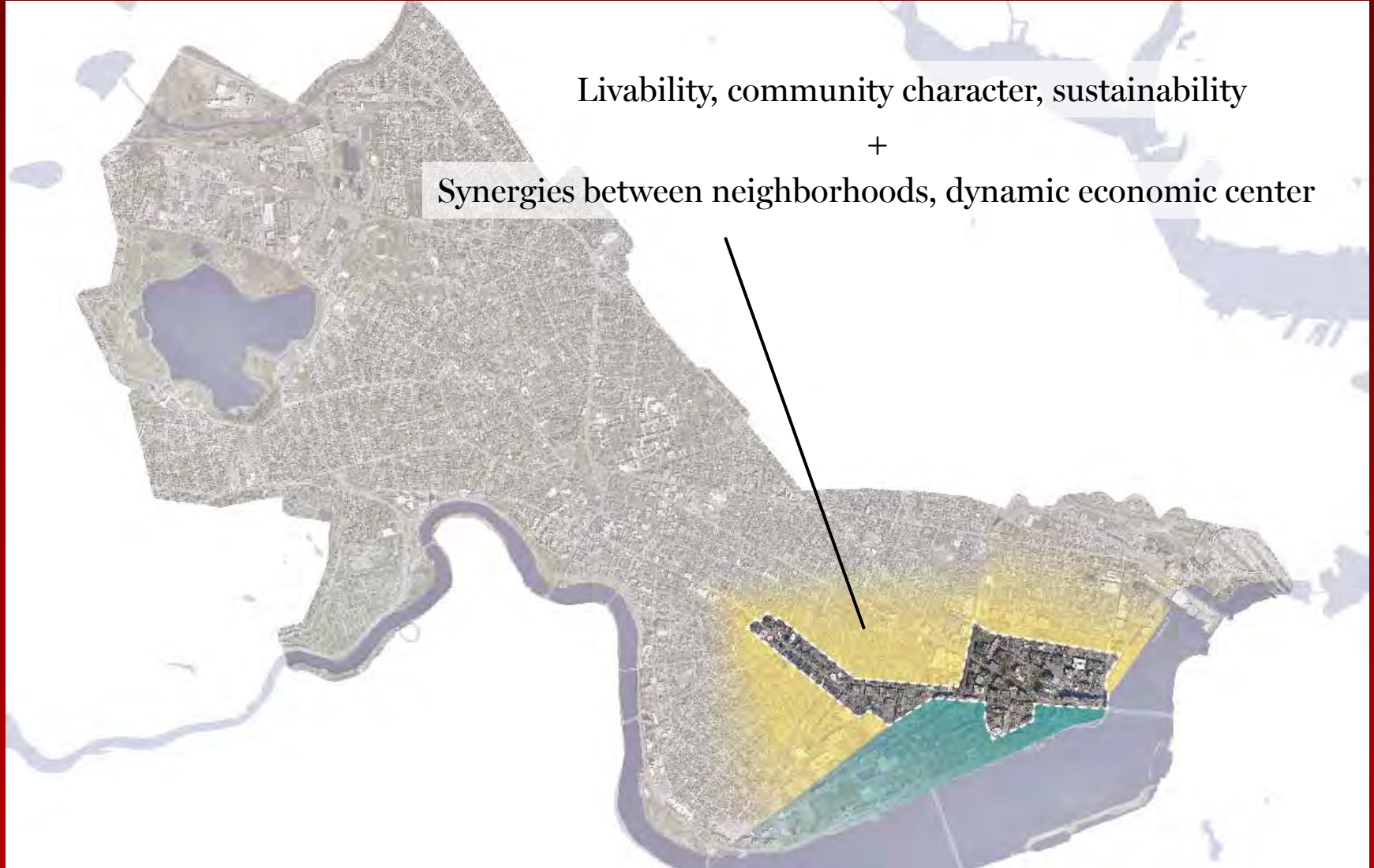
urban design/planning study for
the **central** and **kendall square area**

Values: Neighborhoods

Livability, community character, sustainability

+

Synergies between neighborhoods, dynamic economic center



urban design/planning study for
the **central** and **kendall square area**

Values: Innovation cluster

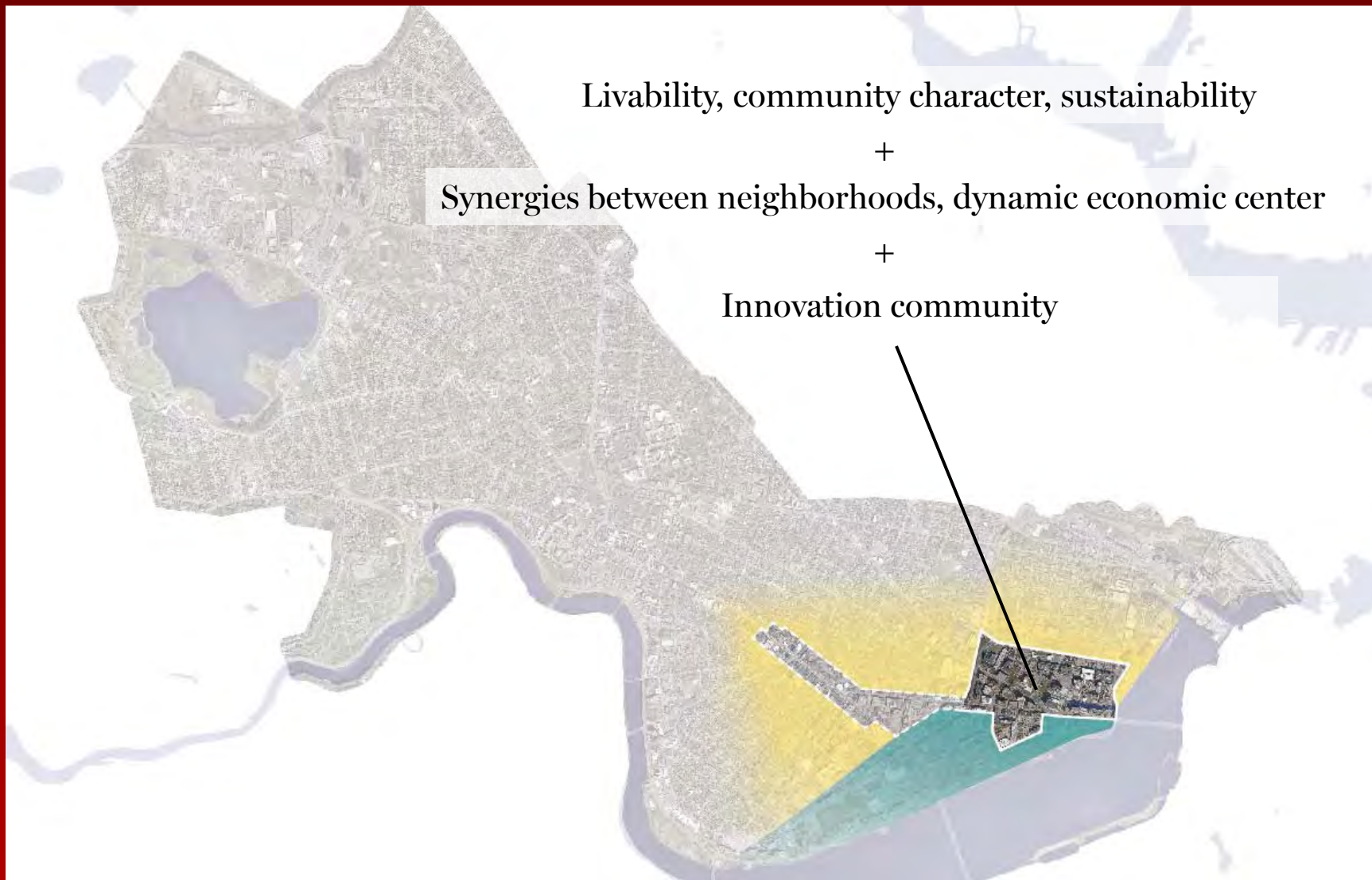
Livability, community character, sustainability

+

Synergies between neighborhoods, dynamic economic center

+

Innovation community



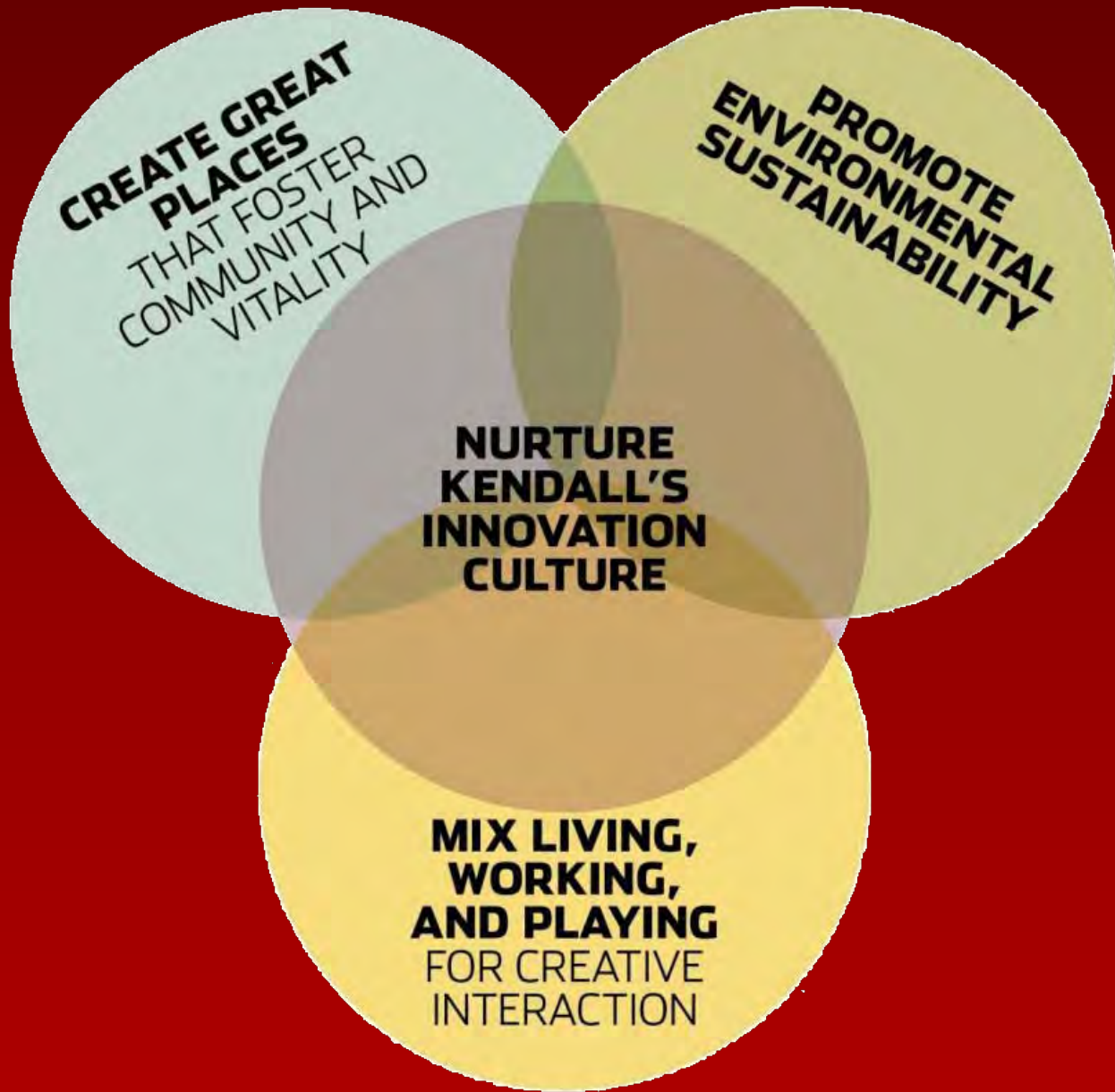
urban design/planning study for
the **central** and **kendall square area**

Kendall Square vision: shaped around people

A dynamic public realm connecting diverse choices for living, working, and playing inspires continued success of Cambridge's sustainable, globally-significant innovation community



urban design/planning study for
the **central** and **kendall square area**



urban design/planning study for
the **central** and **kendall square area**

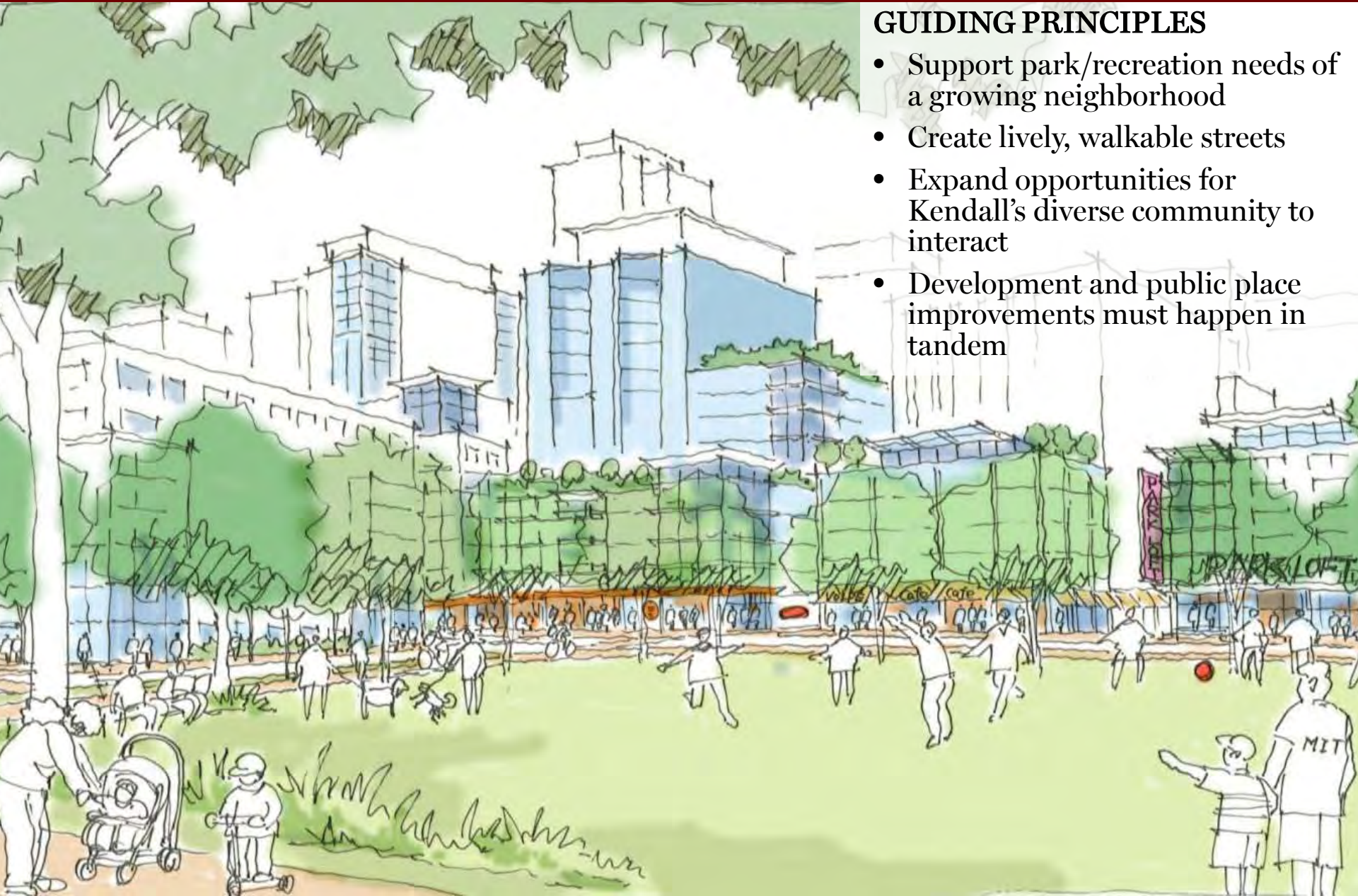
FRAMEWORK: some core challenges

- Accommodate growth
- Transform into a mixed-use district
- Expand the diversity of housing options—graduate student, families, young professionals...
- Make the streets vibrant public places
- Balance need for large floorplates with urban design priorities
- Transform scattered public spaces into a connected, distinctive public realm
- Strengthen physical and social connections to surrounding neighborhoods.



urban design/planning study for
the **central** and **kendall square area**

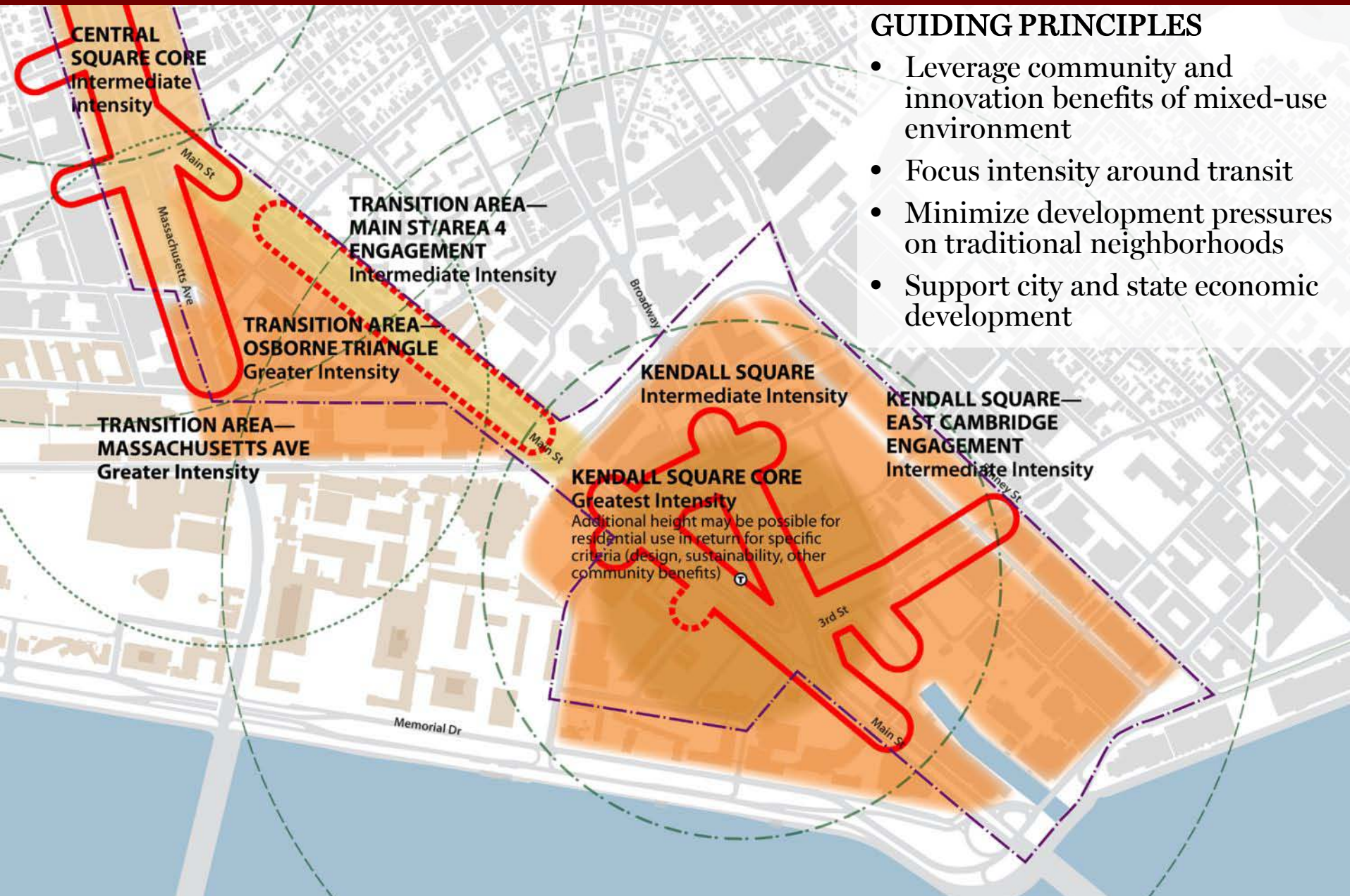
Create great places



GUIDING PRINCIPLES

- Support park/recreation needs of a growing neighborhood
- Create lively, walkable streets
- Expand opportunities for Kendall's diverse community to interact
- Development and public place improvements must happen in tandem

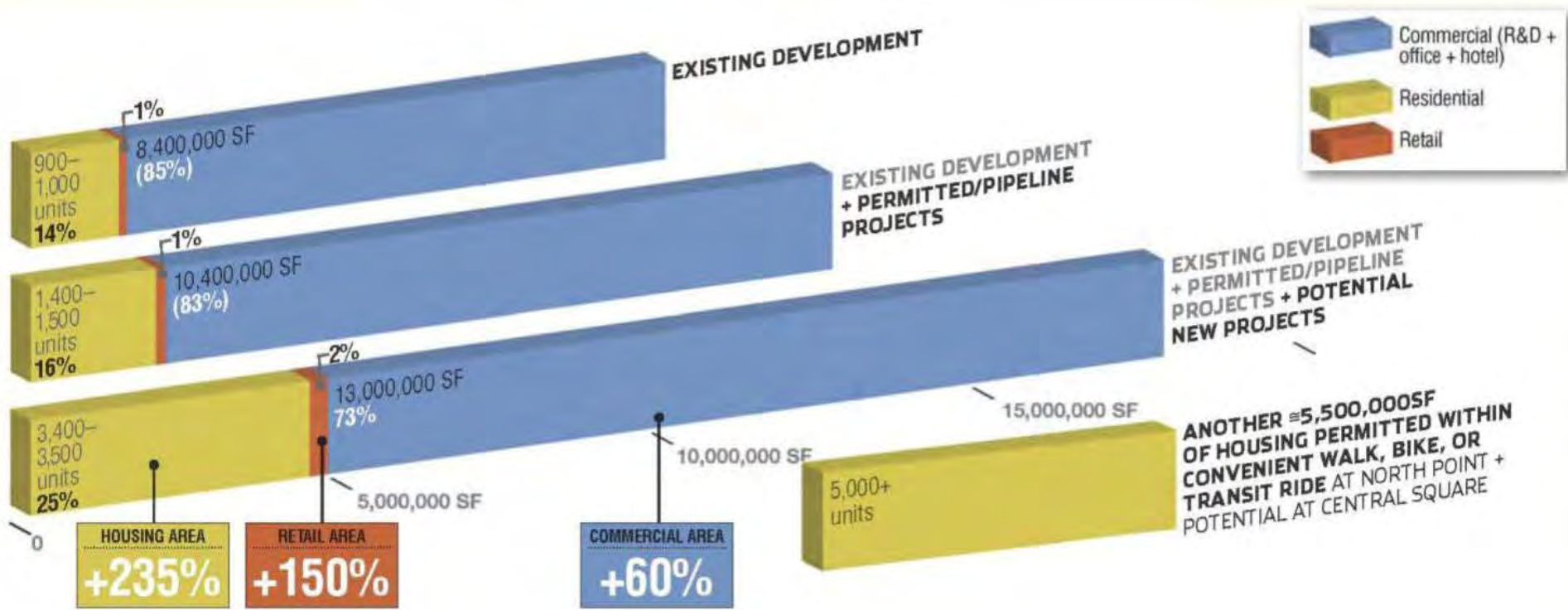
Mix living, working and playing



GUIDING PRINCIPLES

- Leverage community and innovation benefits of mixed-use environment
- Focus intensity around transit
- Minimize development pressures on traditional neighborhoods
- Support city and state economic development

...balance uses for better synergy



urban design/planning study for the **central** and **kendall square area**

Promote environmental sustainability



GUIDING PRINCIPLES

- Expand convenient, affordable access choices
- Enhance streets as public places
- Create a healthier natural environment
- Reduce resource consumption, waste emissions
- Leverage the environmental and economic benefits of compact development

An innovation *community*



FRAMEWORK: Create great places



MORE INTERACTIVE ◀ ✚ ▶ **MORE PERSONAL**

GARDENS/COURTYARDS

ROOF GARDENS

PARKS

PLAZAS

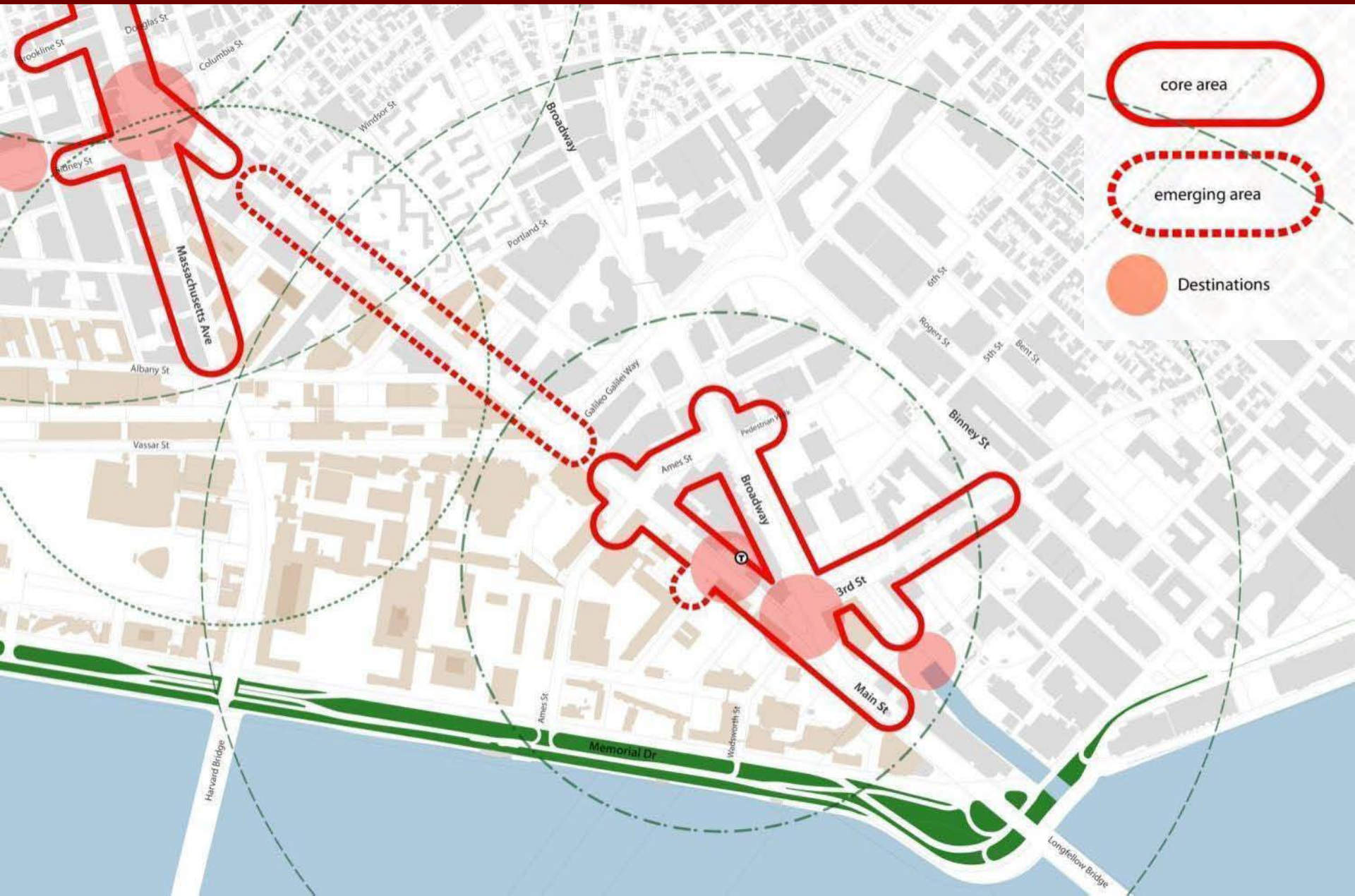
PROMENADES

RESIDENTIAL FRONT DOORS

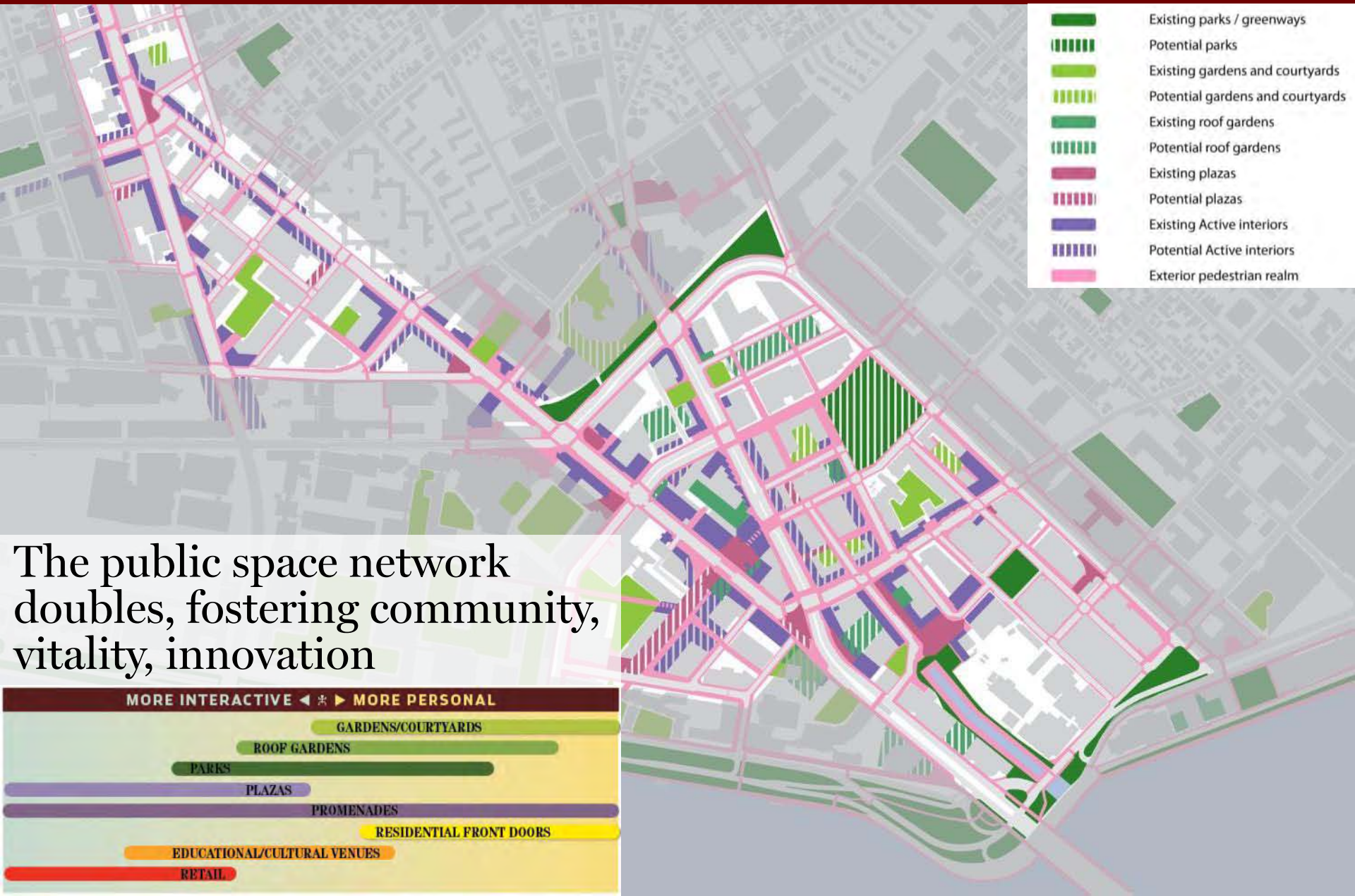
EDUCATIONAL/CULTURAL VENUES

RETAIL

Bring the core of Kendall to life...

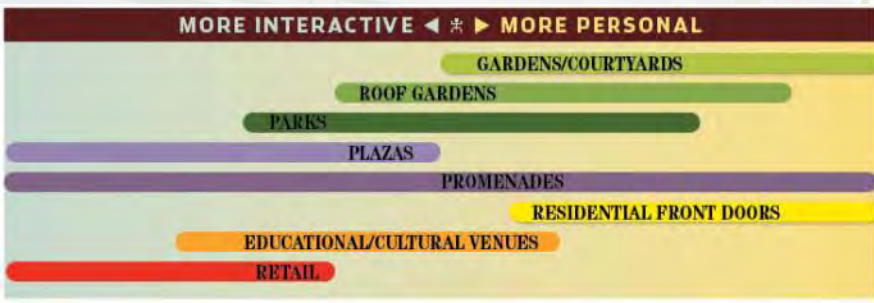


...with a continuum of diverse, dynamic places...



- Existing parks / greenways
- Potential parks
- Existing gardens and courtyards
- Potential gardens and courtyards
- Existing roof gardens
- Potential roof gardens
- Existing plazas
- Potential plazas
- Existing Active interiors
- Potential Active interiors
- Exterior pedestrian realm

The public space network doubles, fostering community, vitality, innovation



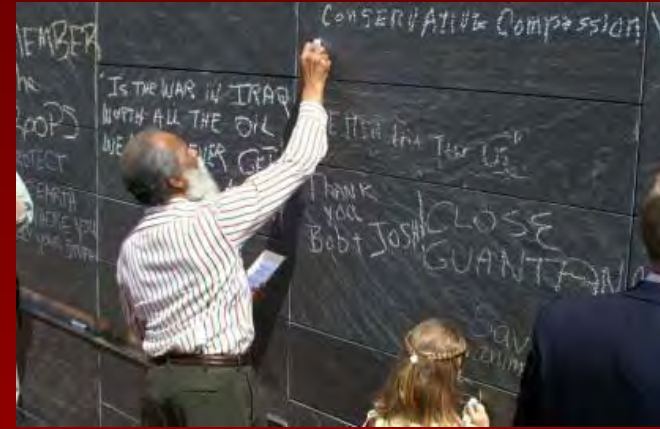
...forming a *connected* network



...marked by signature public places



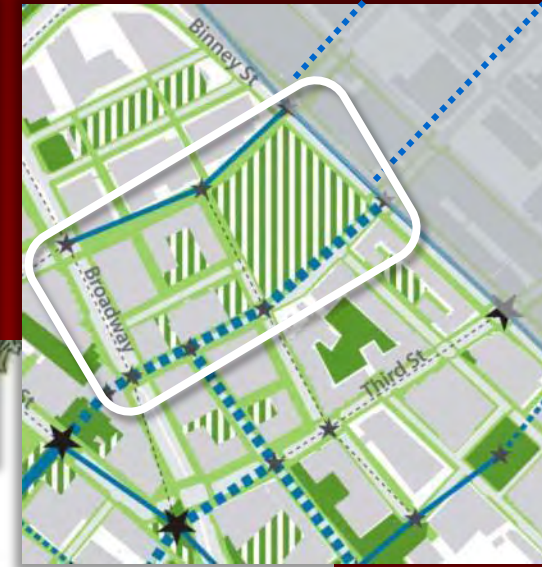
...enlivened by active street level uses



urban design/planning study for the **central** and **kendall square area**

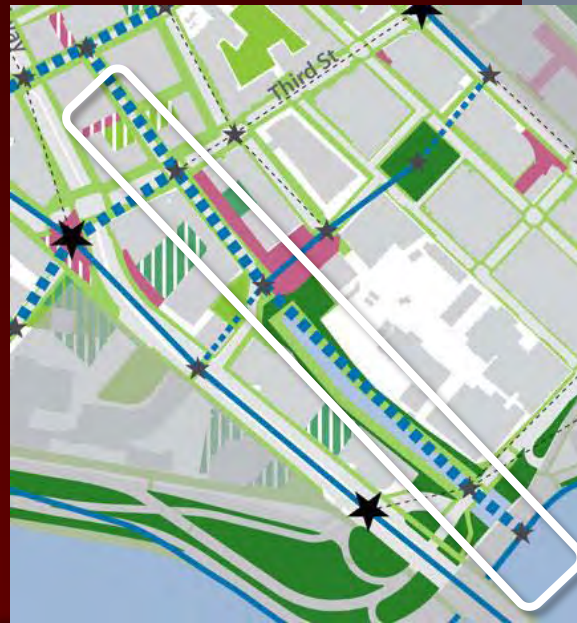
Create a community park at the Volpe site

- Serve a variety of activities and users
- Connect to storytelling promenades: Kendall's history, sustainability



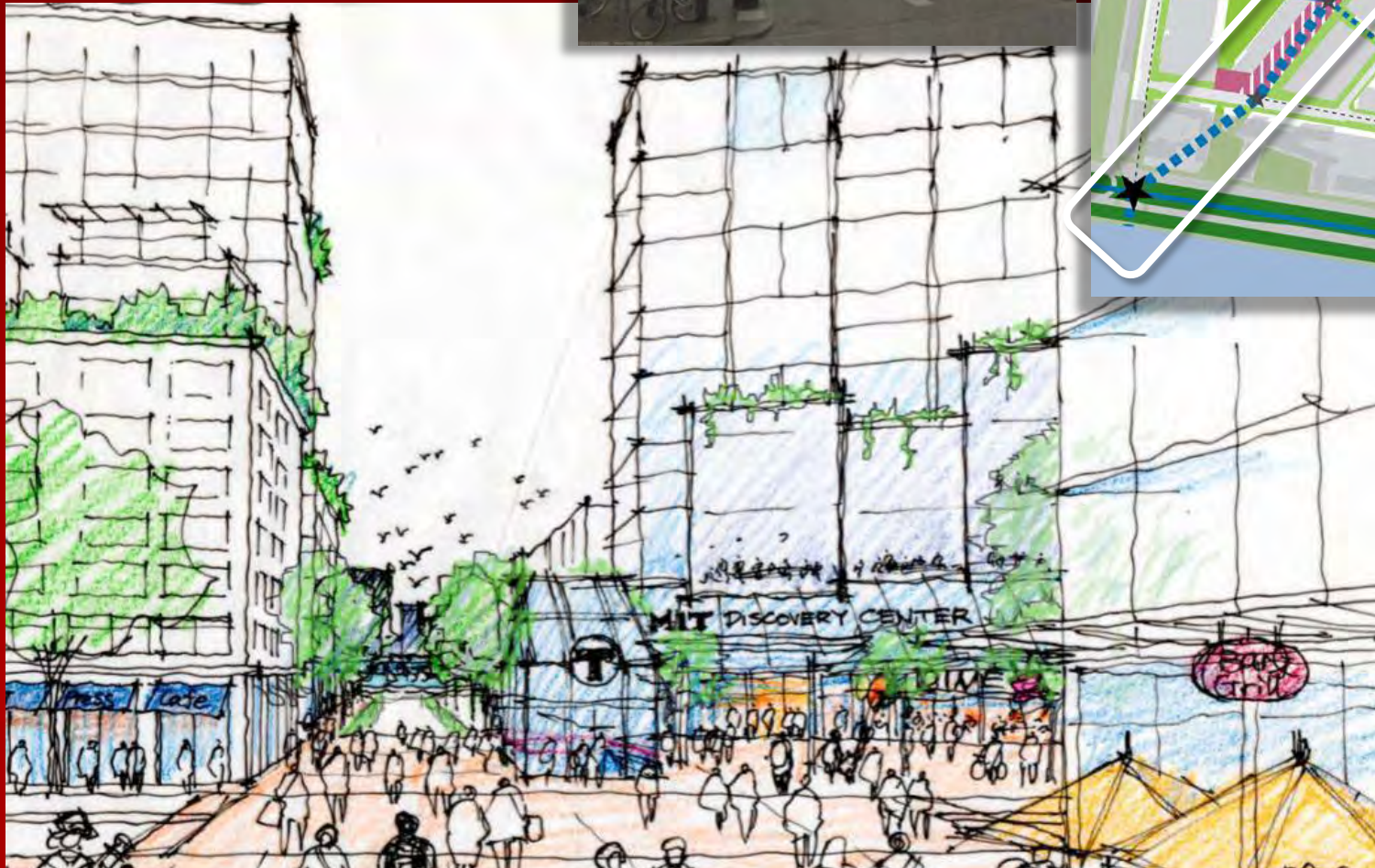
Enhance Broad Canal as a place to experience the river

- Celebrate unique experience of nature, river
- Extend the views, experience with storytelling promenade along historic canal route



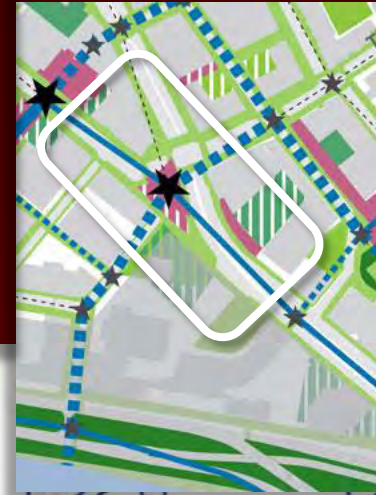
Reinvent Kendall/MIT station plaza as a public forum

- Experiential showcase and laboratory for innovation
- Multimodal access hub of access, wayfinding, activity



Enliven Point Park as Kendall Square's public room

- Kendall's premier outdoor living room, shaped by active edges
- Improved connections to all of Kendall Square



Expanded, connected public realm

- Condition development approval on public place enhancements
 - Contribution to public place fund per development review policy
 - Enhancements to impacted street edge
- Coordinated public/private infrastructure
 - Reconstruction Main-Third, Broadway, Binney, Ames
 - Park network planning and design initiative
 - Other street and park investments
- Coordinated operations through public/private partnership
 - Programming
 - Public art
 - Maintenance



urban design/planning study for
the **central** and **kendall square area**

Active ground floors: implementation

- Condition development approval on active grounds
 - Core area: Retail or public educational/cultural use
 - City partnership in bringing activity to vacant retail
 - Emerging areas: Convertible to retail or public educational/cultural use
 - Other streets: Housing with frequent front doors, stoops, gardens; Commercial uses with at least 50% transparent glazing
 - Retail does not count toward FAR



urban design/planning study for the **central** and **kendall square area**

MIX OF USES AND BUILDING FORM: principles

- Performance-based approach
- At street scale:
 - Frame streets as public outdoor rooms.
 - Create an appropriate pedestrian scale.
 - Relate new development to scale of context buildings.
- Above street scale (intermediate and tallest heights):
 - Accommodate significant additional research and housing development intensity where infrastructure and mixed-use concentrations best support it.
 - Leverage development value to support community benefits.
 - Produce variety of building height and massing to enhance aesthetics and sense of place, preserve sky views & solar access



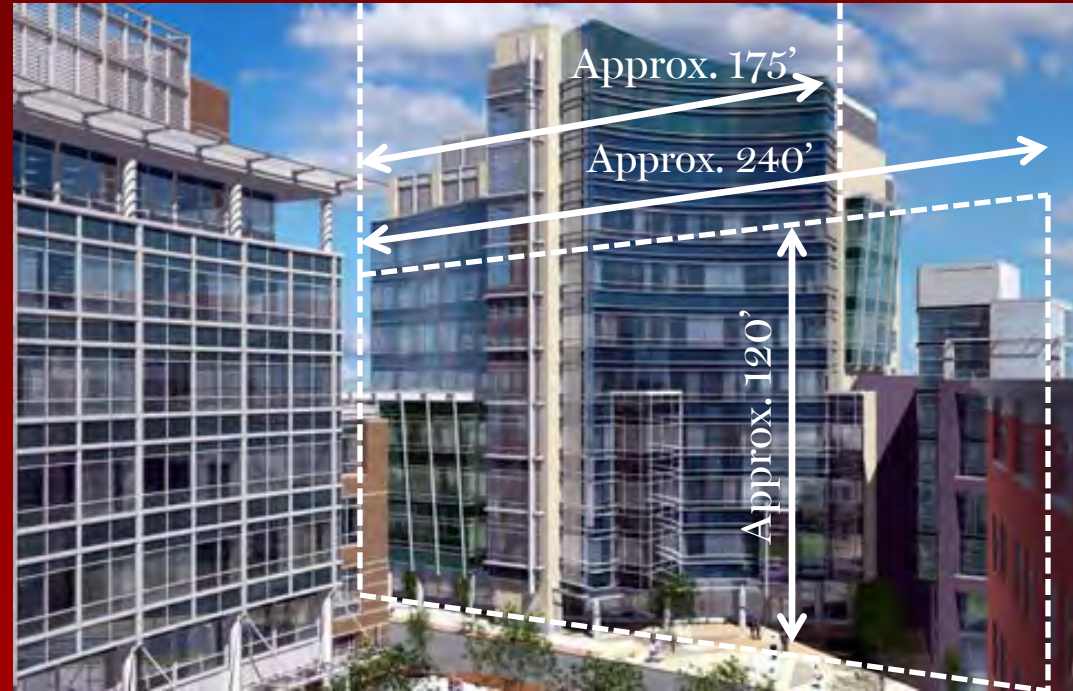
Built form and use: summary

Height range	Priority uses	Maximum lengths of perpendicular facades*	Potential floorplate (approx. sf)
250' to 300'	Housing only	160' x 65'** or 90' x 90'**	10,400
200' to 250'		175' x 175'**	30,600
120' to 200'		175' x 175'	30,600
85' to 120'		240' x 175'	42,000
Streetwall (ground to 85')	Active uses required on ground floor in core areas; encouraged elsewhere	None	Full block

*At least one major vertical break – a displacement of at least 8' in depth, 16' in width and 2/3 of building height – is required per 100' of façade length.

** Subject to additional design guidelines addressing façade articulation

Façade lengths: research/office



40 Lansdowne Street
Floorplate approx. 27,500sf



urban design/planning study for
the **central** and **kendall square area**

Built form and use: upper-floor connections

- Encouraged for tenants needing larger floorplates (i.e., 35,000-70,000sf)
- Emphasize distinct appearance of buildings through transparency, setback
- Proposed guidelines:
 - Within blocks
 - Set back at least 35' from public street façade
 - Façade at least 80% transparent
 - Provide ground level public passage at selected locations
 - Over side streets/promenades
 - Set back at least 35' from public street
 - At least 35' or two stories clearance above ground
 - No more than 35' wide and 2/3 of building height (aggregate)
 - Space multiple connections apart by double their greatest width
 - Façade at least 80% transparent



urban design/planning study for
the **central** and **kendall square area**

Built form and use: upper-floor connections

- Encouraged for tenants needing larger floorplates (i.e., 35,000-70,000sf)
- Emphasize distinct appearance of buildings through transparency, setback
- Proposed guidelines:
 - Within blocks
 - Set back at least 35' from public street façade
 - Façade at least 80% transparent
 - Provide ground level public passage at selected locations
 - Over side streets/promenades
 - Set back at least 35' from public street
 - At least 35' or two stories clearance above ground
 - No more than 35' wide and 2/3 of building height (aggregate)
 - Space multiple connections apart by double their greatest width
 - Façade at least 80% transparent



Preferred land use scenario



-  **Housing:** 2,000-2,500 units
-  **Office/research:** 2.5-3 million sf
-  **Retail/active ground floor:** 200-250,000sf

implementation: mixed-use, retail

Active ground floor uses required in core areas

- Retail or educational/cultural
- Outside of core, retail encouraged; alternatively, 50% transparency or regular residential front doors/stoops required
- Retail exempted from FAR count



urban design/planning study for
the **central** and **kendall square area**

...housing

Minimum amount of **housing development** required throughout study area in conjunction with research/office development

- Begin housing development by completion of 40% of associated office/research
- Complete housing by completion of 80% of associated office/research
- Inclusionary housing and incentive zoning policies apply
- Current development proposals include 500-600 housing units



urban design/planning study for the **central** and **kendall square area**

...community benefits

Support for...

- Parks/public spaces (maintenance and programming)
- Workforce readiness programs and education
- Expanded transportation alternatives and demand management



urban design/planning study for
the **central** and **kendall square area**

SUSTAINABILITY in K2: Land Use Planning

- Density
- Mixed use development
- Green space/pervious surfaces
- Transit-Oriented Development



urban design/planning study for
the **central** and **kendall square area**

Sustainability in K2: Goals

- Build neighborhood with reduced environmental impacts
- Demonstrate leadership as sustainable, cost-efficient place to do business

Deloitte report on green buildings: “More than 90 percent of respondents reported a greater ability to attract talent, and more than 80 percent reported greater employee retention (81 percent) or improved worker productivity (87 percent). Seventy-five percent saw improved employee health, and 73 percent reported operational cost reductions.” - CoStar Group Newsletter 2008

- Support community vitality



urban design/planning study for
the **central** and **kendall square area**

Sustainability in K2: Building

- 80% of Cambridge greenhouse gas emissions come from building energy consumption in existing buildings
- Proposed land use vision increases built square footage potential by 3 million square feet
- Significant portion of future square footage likely to have high energy intensity
- Reducing consumption of non-renewable energy is a key strategy



Sustainability in K2: Objectives

- High building energy performance
- Increased use of renewable energy and/or district steam
- Low reliance on automobiles; increased use of alternative fuel vehicles
- Mitigation of urban heat island
- Reduced storm water runoff quantity and improved water quality
- Water conservation
- Minimize waste generation
- Make sustainability visible



Sustainability in K2: Potential Strategies

- BUILDINGS:
 - Current: buildings must meet Silver level of the LEED green building rating system
 - Several proposed requirements under discussion:
 - LEED Gold (focuses on construction)
 - LEED Existing Buildings Operations and Management (focuses on building performance)
 - Energy Star Label (building in top 25% nationally for energy use per square foot)
 - Energy performance to exceed national energy code requirements



Sustainability in K2: Potential Strategies

- BUILDINGS (cont'd):
 - District steam feasibility assessment
 - Analysis of how greenhouse gas emissions could be reduced (per state Environmental Policy Act for large projects)
 - Cool roofs (white/green); vegetated walls
 - On-site storm water retention/treatment
 - Green office programs (recycling, purchasing, etc.)



Sustainability in K2: Potential Strategies

- STREETScape/OPEN SPACE:
 - Increase tree canopy coverage
 - Paving materials with high reflectance
- TRANSPORTATION:
 - Employer-based programs that encourage sustainable modes
 - Street design that encourage walking, biking and transit use
 - Support for Hubway bikesharing program
 - Expansion of EV charging network
 - Increased use of alternative fuel vehicles (EV, biodiesel)



Sustainability in K2: Next Steps

- Zoning will incorporate sustainability measures:
 - Green building requirements
 - Enhanced green transportation requirements
 - Stormwater management requirements
- Future option: creating a K2 EcoDistrict through a public-private partnership

Examples of EcoDistricts:

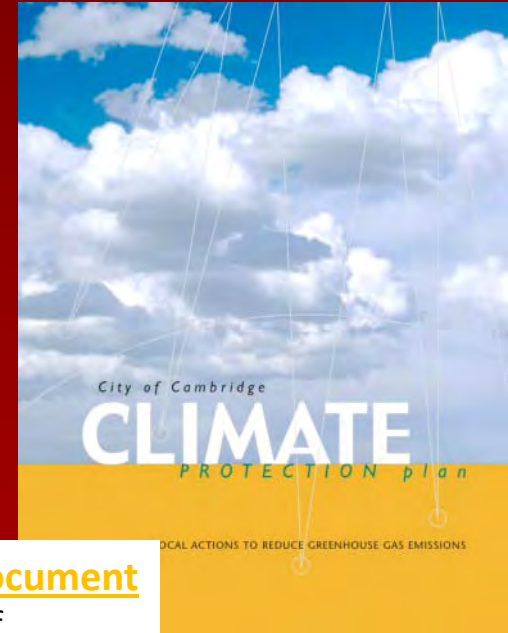
- Seattle 2030 District
- FortZED in Fort Collins, CO
- Dockside Green, Vancouver, CA
- EcoCity Hamburg



urban design/planning study for
the **central** and **kendall square area**

TRANSPORTATION: Current Policy *is Working*

- Responsible growth
 - Vehicle Trip Reduction Ordinance, Growth Policy
 - PTDM Program
 - Climate Action Plan
- Multi-modal approach
 - Ped/Bike Plan
 - Public Transportation/EZ Ride



Policy # 22, Growth Policy Document

Undertake reasonable measures to improve the functioning of the city's street network, without increasing through capacity, to reduce congestion and noise and facilitate bus and other non-automobile circulation.

Policy # 23, Growth Policy Document

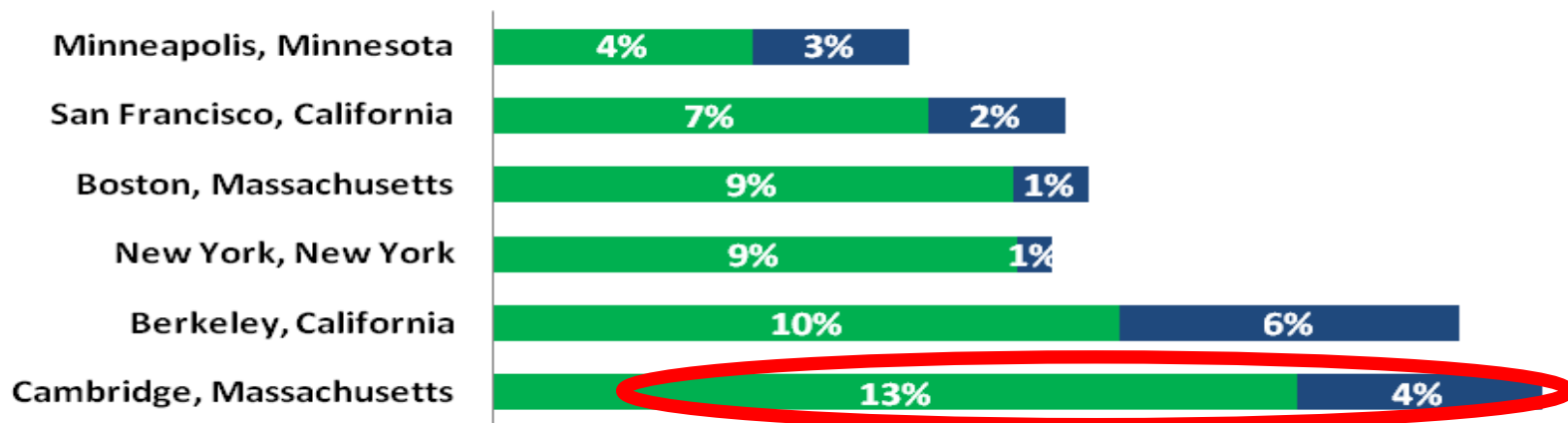
Encourage all reasonable forms of nonautomotive travel including, for example, making improvements to the city's infrastructure to support bicycling and walking.

Travel Trends in Cambridge

- Auto ownership is declining
 - Households without a vehicle grew from 28% to 32% from 2000 – 2008
- Bicycle growth is strong
 - 150% increase in observed bicycle counts from 2002 – 2010
- America's most walkable city
 - Prevention Magazine, 2008, 2012

**Percentages of Workers who Walk and Bike to Work
in Select US Cities**

■ Walk ■ Bike



Travel Trends in Cambridge

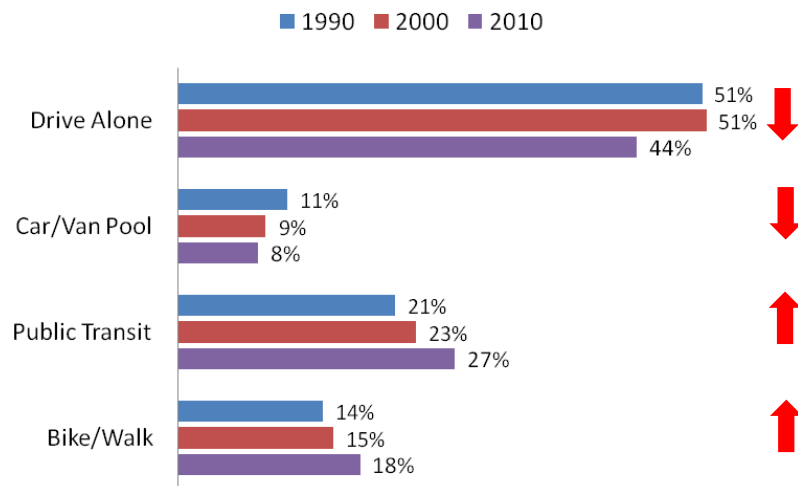
Mode Shifts from SOV

- SOV share reduced from 51% to 44%
- Public Transit grew from 21% to 27%
- Bike/Walk share now 18%

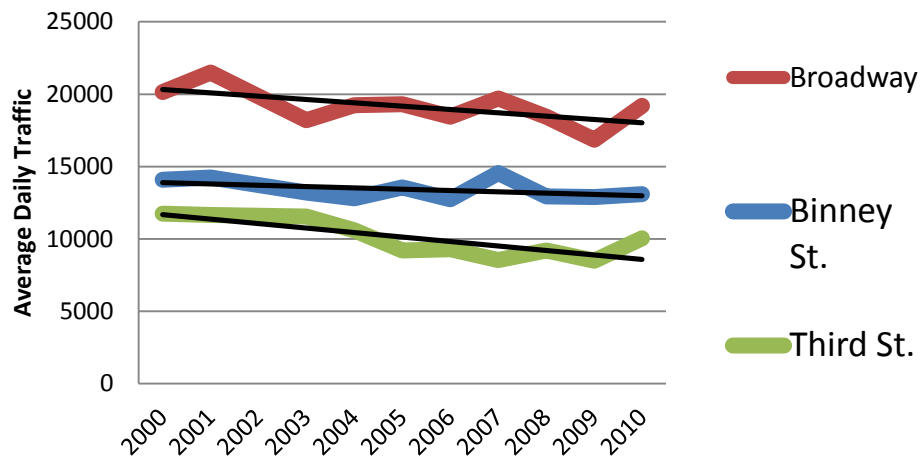
Development vs. Traffic Growth

- 4 mil. sq.ft. development growth from 2000-2010 (37.6%)
- Daily Traffic Volumes remained consistent or been reduced

Cambridge Workers Means of Commute to Work



Kendall Square Average Daily Traffic with Trend Lines



urban design/planning study for
the **central** and **Kendall Square area**

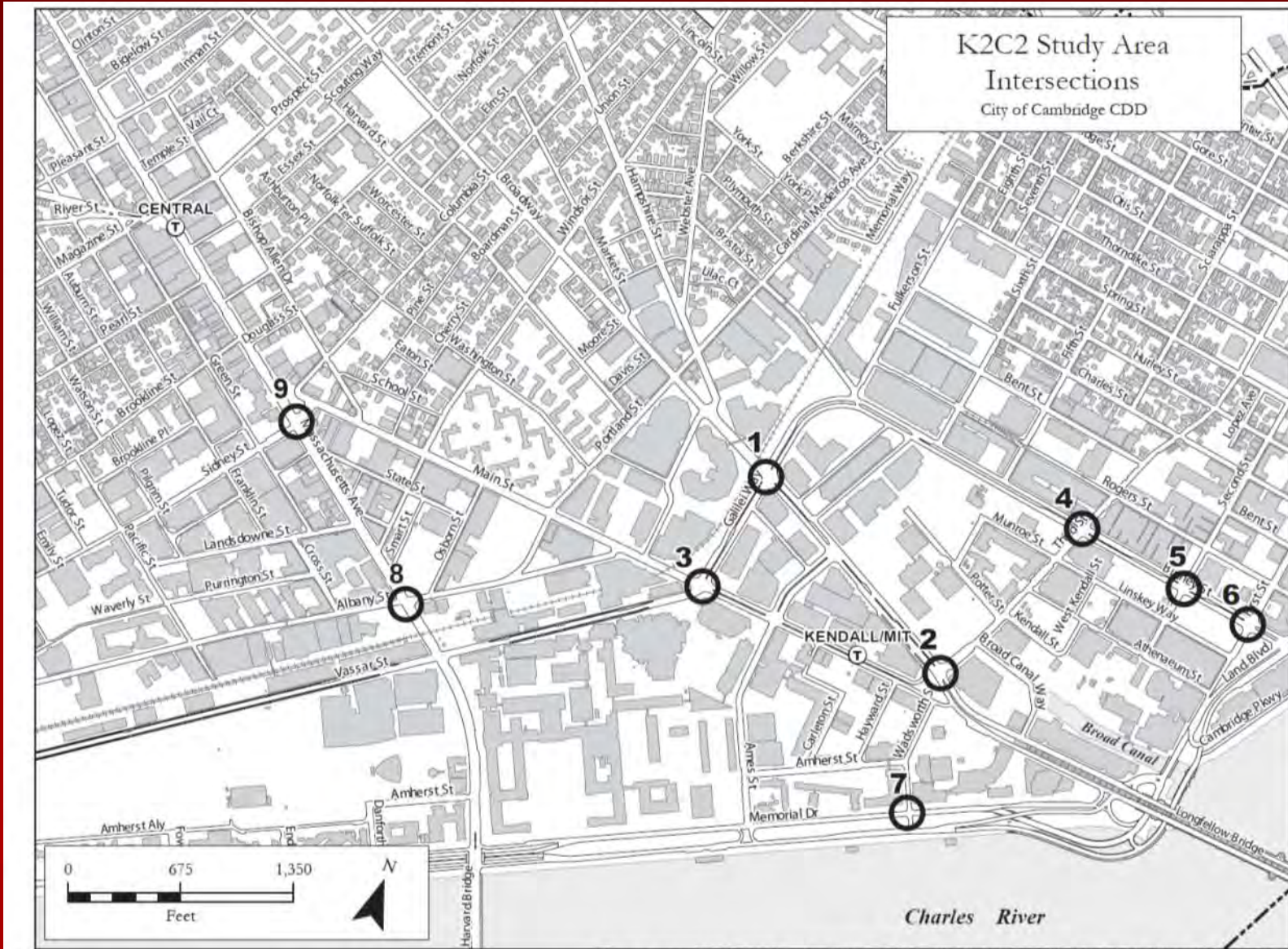
Overview of Critical Sums Analysis

- Critical Sums Analysis is a planning tool used to evaluate build-out scenarios
- Compares how different levels of build-out impacts specific intersections in general way
- Not a traffic engineering tool
- Same methodology used in prior planning studies:
 - 2001 Citywide Rezoning
 - 2001 ECaPS
 - 2004 Concord-Alewife Plan



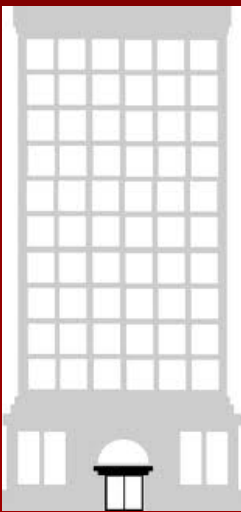
urban design/planning study for
the **central** and **kendall square area**

Intersections in Study Area



Calculating New Trips

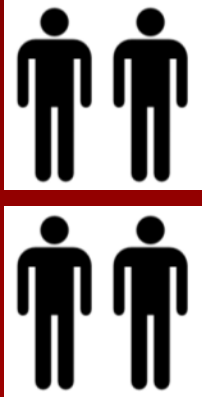
(SQUARE FEET
BY LAND USE)



NEW
DEVELOPMENT



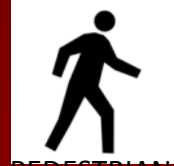
(ITE RATE AND ACS
FACTOR)



PERSON
TRIPS



(MODAL SPLIT)



PEDESTRIAN



TRANSIT



BICYCLE



CAR

PERSON
TRIP BY MODE



(VEHICLE
OCCUPANCY
RATE)

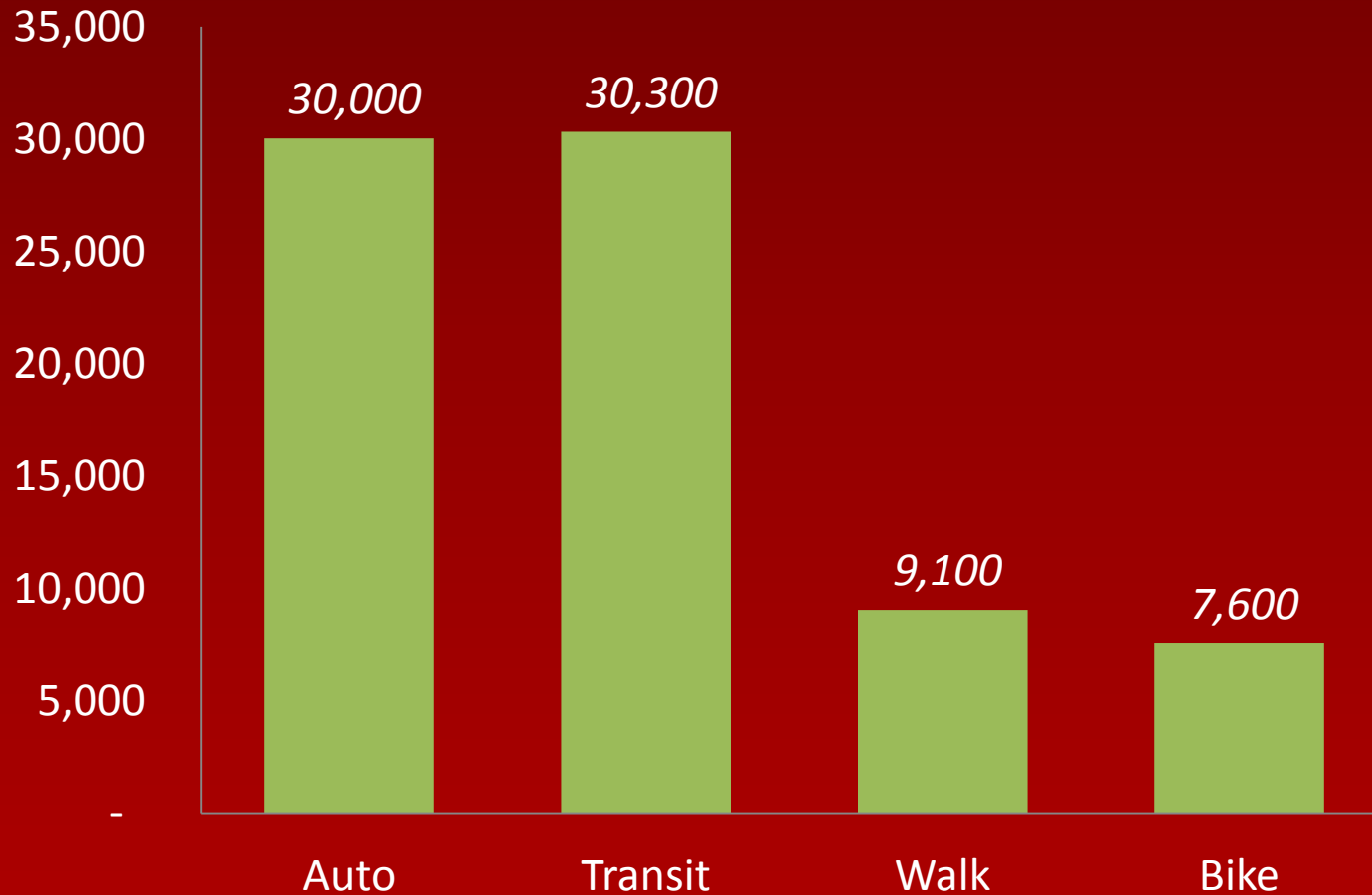


CAR TRIPS

New Development in 2030 – Daily Trips

Enhanced TDM

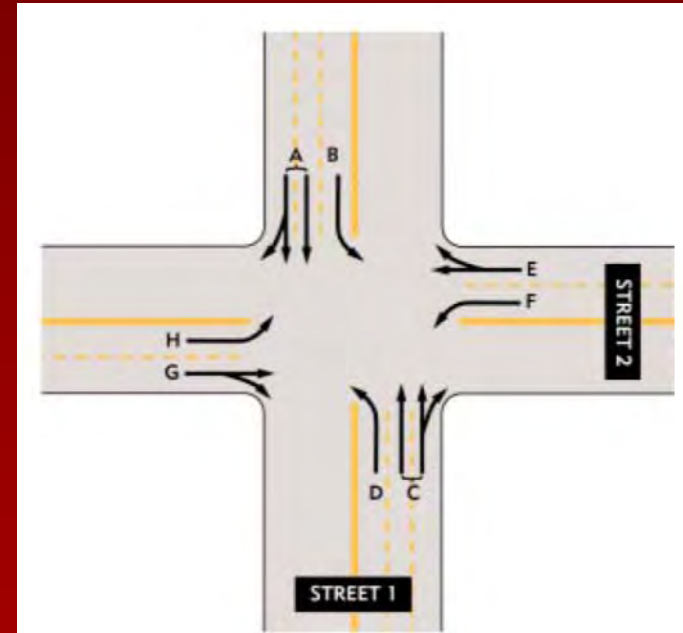
Total: 77,500 (approximate)



urban design/planning study for
the **central** and **kendall square area**

Conclusion

- Indicates future intersection operations of the network acceptable
- Broadway and 3rd intersection will be the most constrained
- Future development projects subject to:
 - Traffic study/traffic mitigation requirements in Zoning Ordinance
 - PTDM Ordinance
 - Enhanced TDM

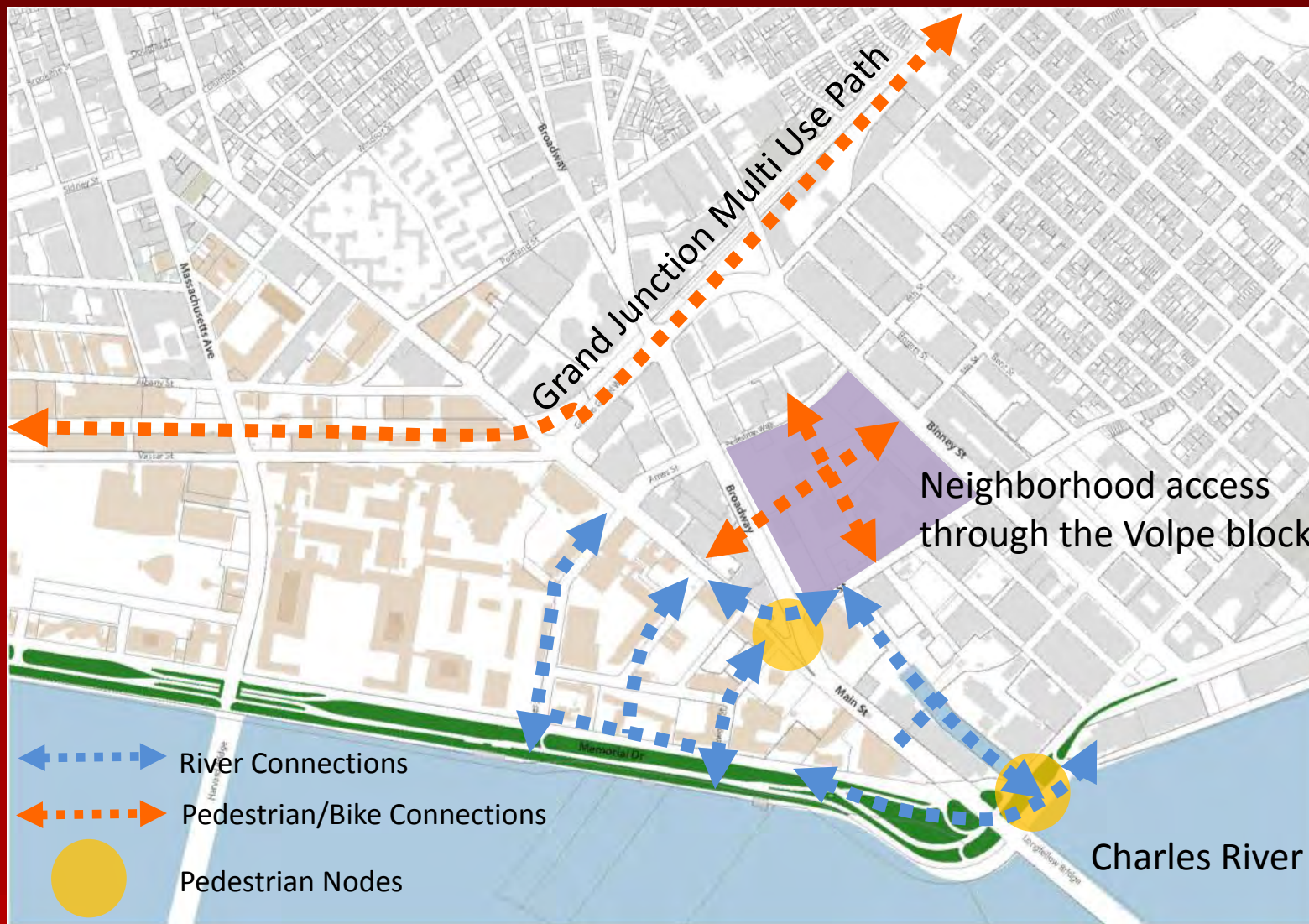


urban design/planning study for
the **central** and **kendall square area**

Complete Streets Concept



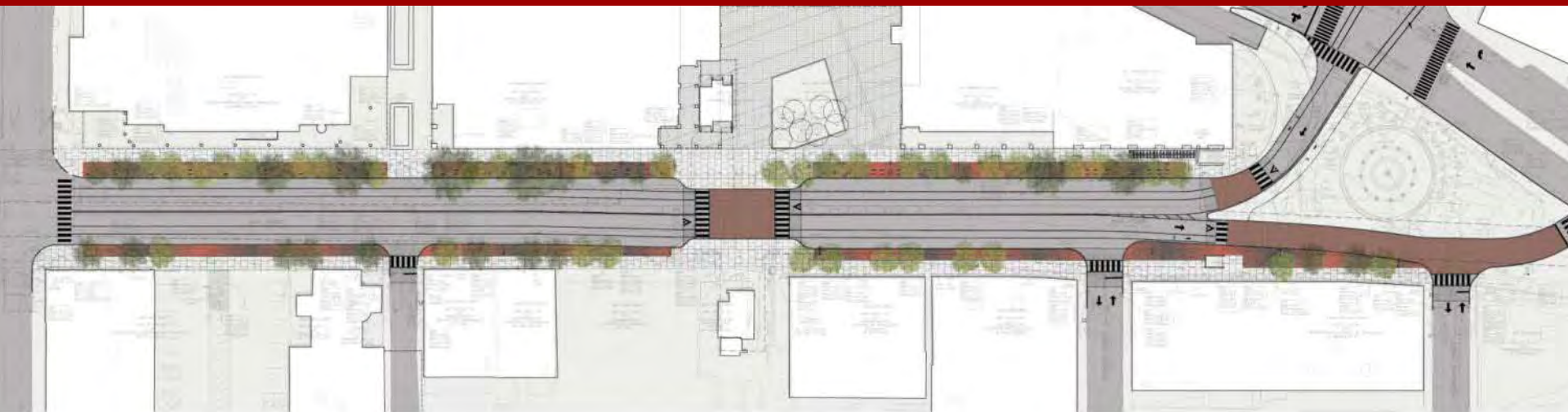
Priority Pedestrian and Bicycle Connections



Main Street improvements: Ames to Wadsworth

Streetscape as a living room

- High quality experience for pedestrians & cyclists
- Artist designed bike racks
- Enhanced transit accommodation
- New connection from Third St to Main St



Street Network

- Direct auto traffic to use the most appropriate routes within and around the study area roadway network
- Minimize additional traffic on neighborhood streets
- Manage vehicular traffic from future development

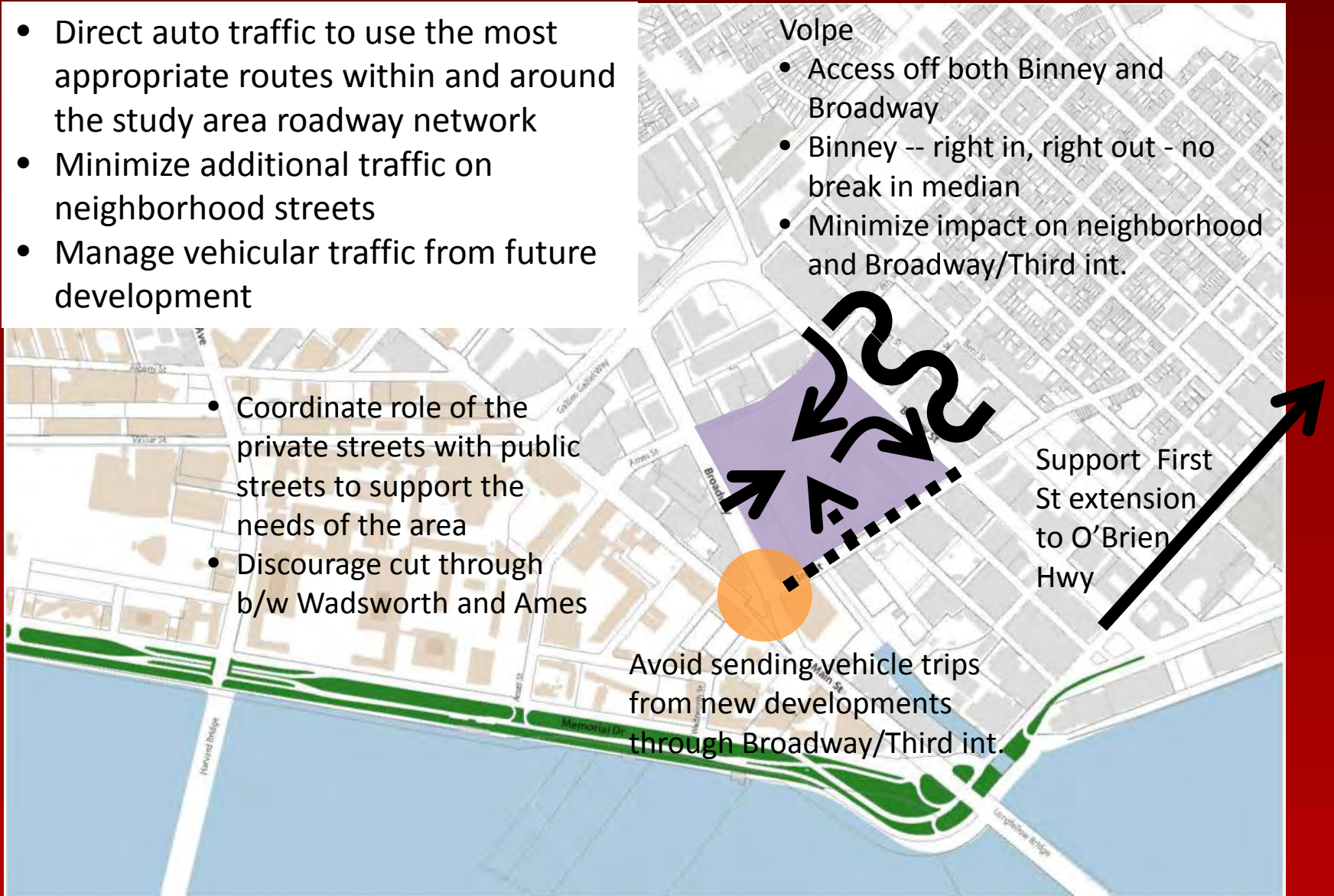
- Coordinate role of the private streets with public streets to support the needs of the area
- Discourage cut through b/w Wadsworth and Ames

Volpe

- Access off both Binney and Broadway
- Binney -- right in, right out - no break in median
- Minimize impact on neighborhood and Broadway/Third int.

Avoid sending vehicle trips from new developments through Broadway/Third int.

Support First St extension to O'Brien Hwy

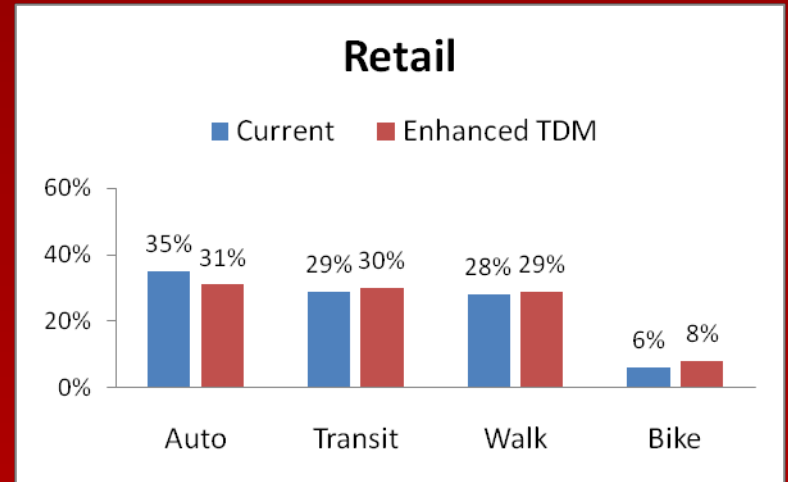
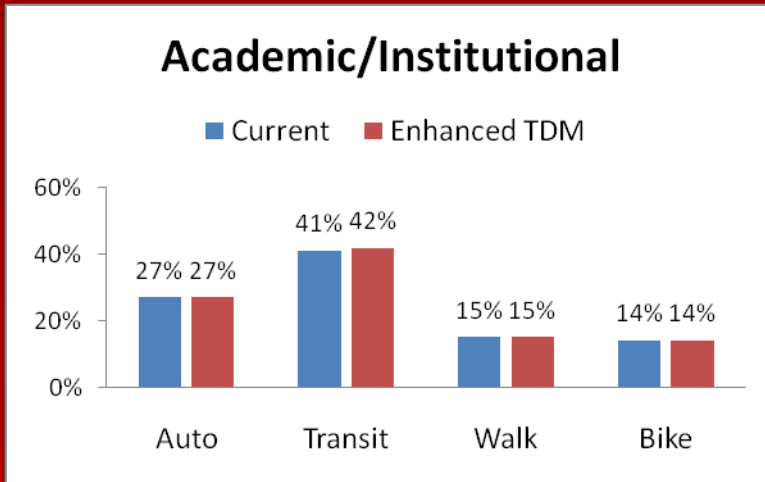
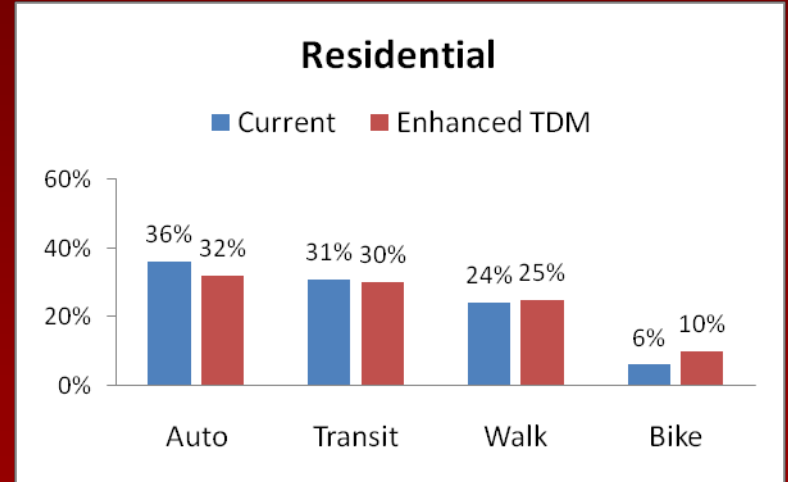
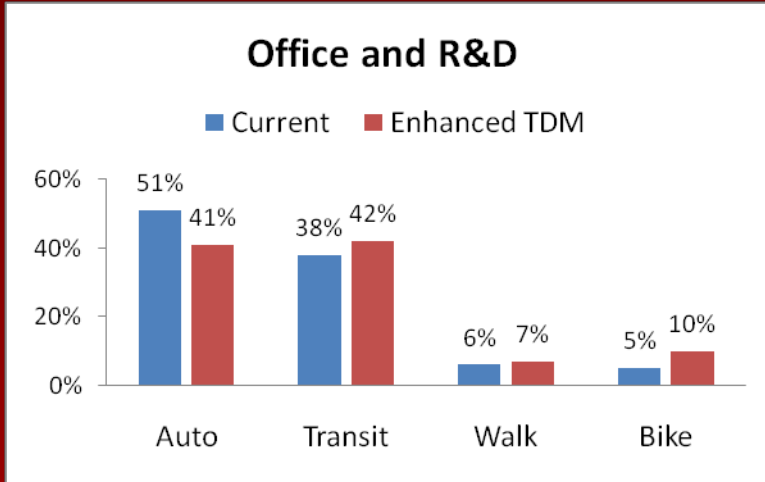


Current Kendall TDM Measures & Participation

- ✓ Cambridge's PTDM program is a national best practice
- ✓ Cambridge businesses & residences participate in many TDM measures
- ✓ High participation rates in nearly half of all available programs
- ✗ Low participation rates in some of the most effective TDM measures (cost more to support)



Proposed Enhanced TDM Mode Shares by Land Use



Enhanced TDM: Priority Recommendations

EMPLOYEES

- Appropriate pricing of parking—market rate paid by employee
- Transportation benefit paid to all employees for commute expenses regardless of mode
 - or 100% transit subsidy
 - Future option: Universal Pass
- Free shuttle to Lechmere and North Station
- Excellent bicycle parking and benefits

RESIDENTS

- One free bus/subway pass for each adult member of household upon move-in
- Car-share parking space
- Pay annual car-share membership fee for car-free residents

Off-Street Parking: Proposed Approach

Optimize off-street parking to match parking needs of new development based on the Enhanced TDM Scenario

- Defined parking maximums for all uses
- Flexible minimum parking based on analysis and as approved by Planning Board
- Shared Parking Provision

Use	AUTO PARKING		MIN. BIKE PARKING
	Minimum	Maximum	
R&D	Based on analysis	0.8 sp/KSF	10% of person trips
Office		0.9 sp/KSF	
Retail /consumer svc		0.5 sp/KSF	
Residential	0.5 sp/d.unit	0.75 sp/d.unit	2 sp/d.unit

Shared Parking: Proposed Approach

For Mixed Use Developments:

Require shared parking when peak daytime use is matched with peak nighttime use, such as Office/R&D with Residential

Use	Night	Day
Residential	100%	60%
Office/R&D	10%	100%
Retail/Commercial	Require a shared parking study	
Restaurant		

Transit Growth - Trends

KENDALL STATION

Daily Boardings:

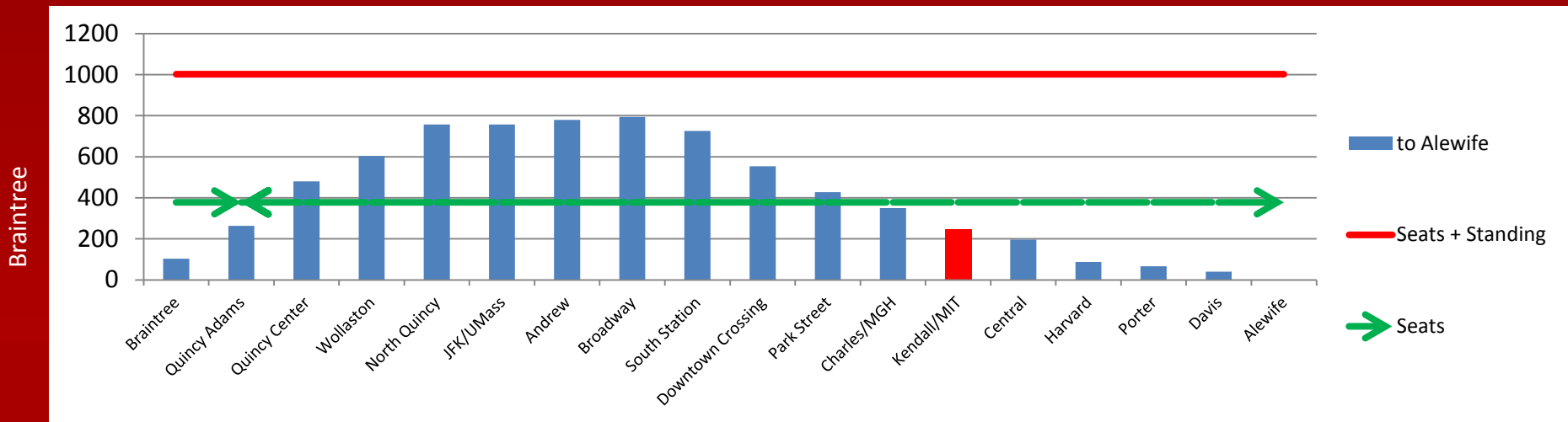
- 13,975 (7.3% of Red Line total)
- 4th busiest on Red Line

Current Hourly Peak Capacity:

- 2,650 seated/7,000 policy
- Unused Capacity AM Peak: 1,450 p/h
- Unused Capacity PM Peak: 2,800 p/h

TRENDS

- MBTA Ridership hitting Record Highs
- EZ Ride ridership growing 4% per year since 2002
- Red Line Ridership forecasted to almost double by 2030 *Source: Urban Ring RDEIR, 2008*
- MBTA raises fares and cuts service, starting July 1



Key Issues/Questions - Transit

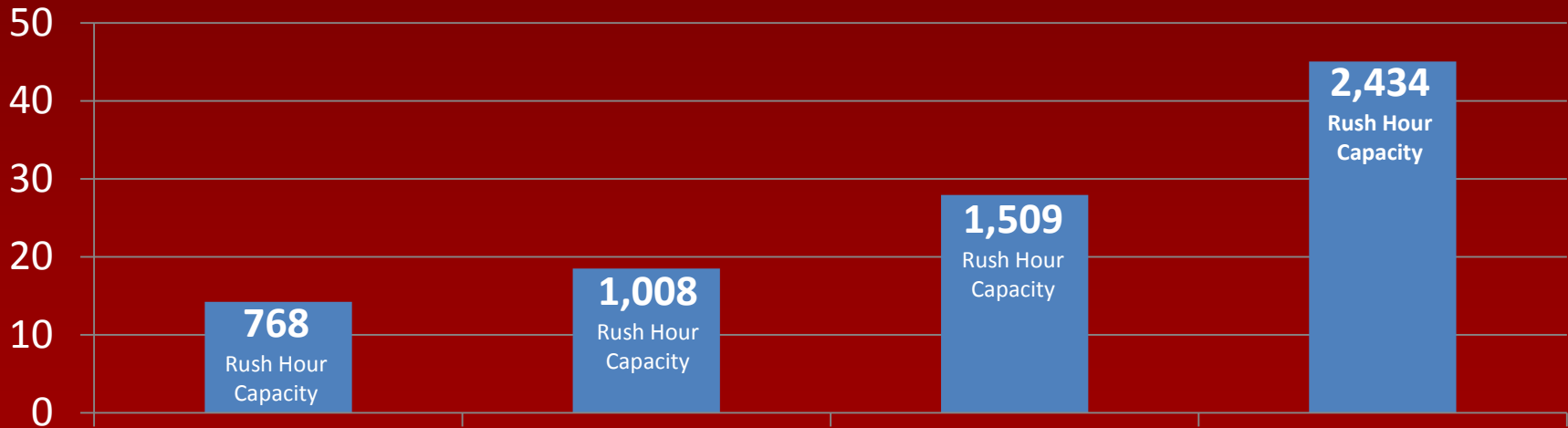
Barriers to expanded Kendall transit are **SYSTEMWIDE**

- Overall frequency
- Central subway congestion
- Additional station access (parking, bicycle facilities)
- Expanded public transportation coverage
- Span of Service

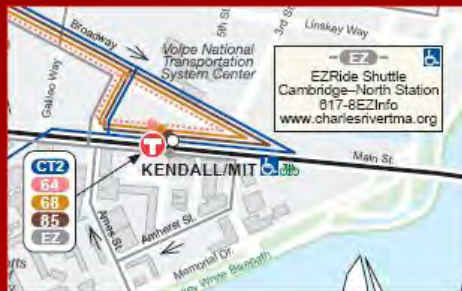


Existing Conditions: Bus

Kendall has the least bus service/capacity of nearby MBTA Transit Hubs



Kendall Square



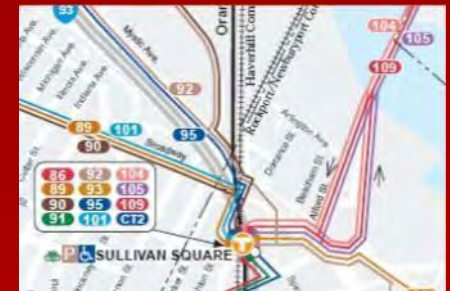
Lechmere



Central Square

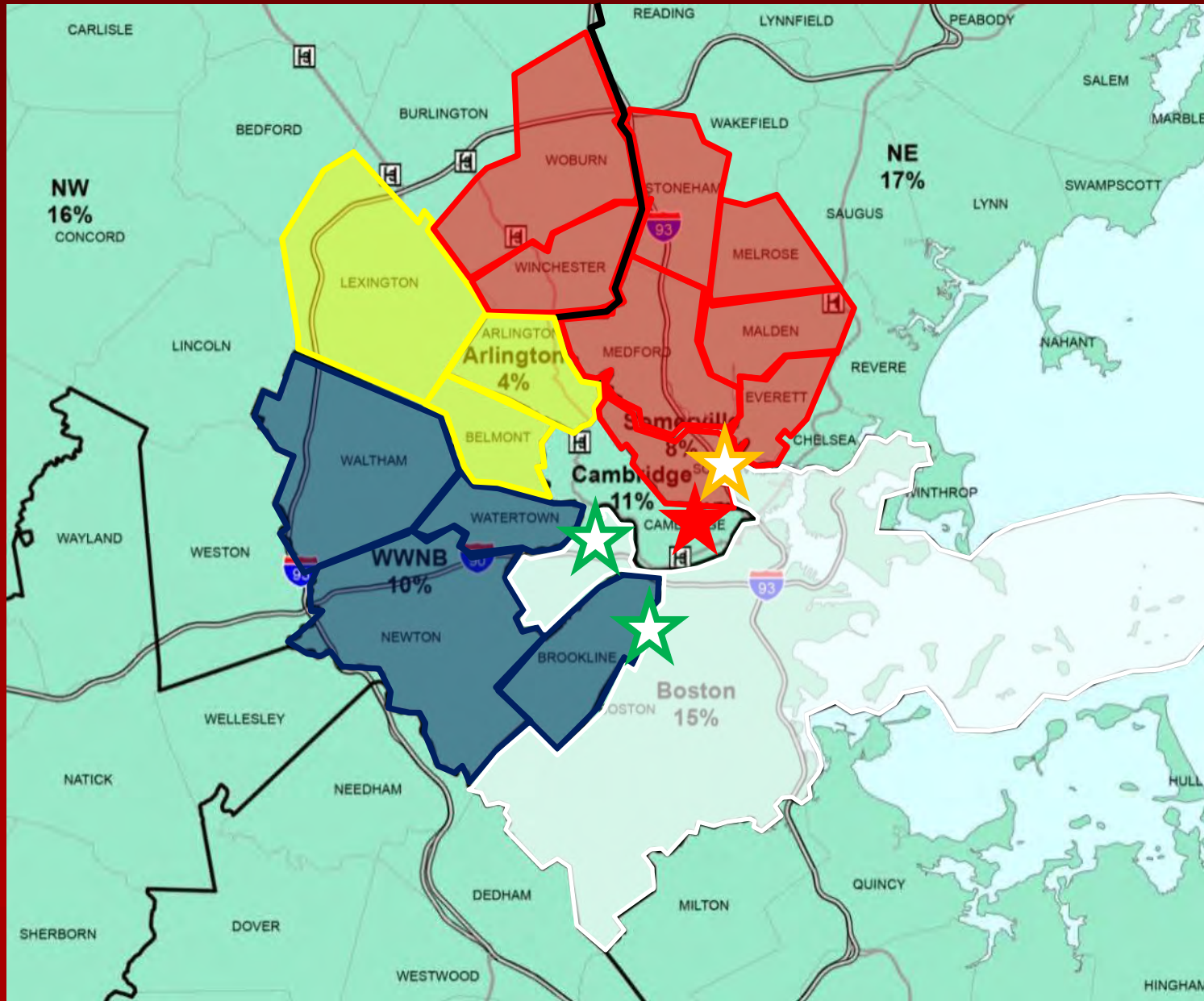


Sullivan Square

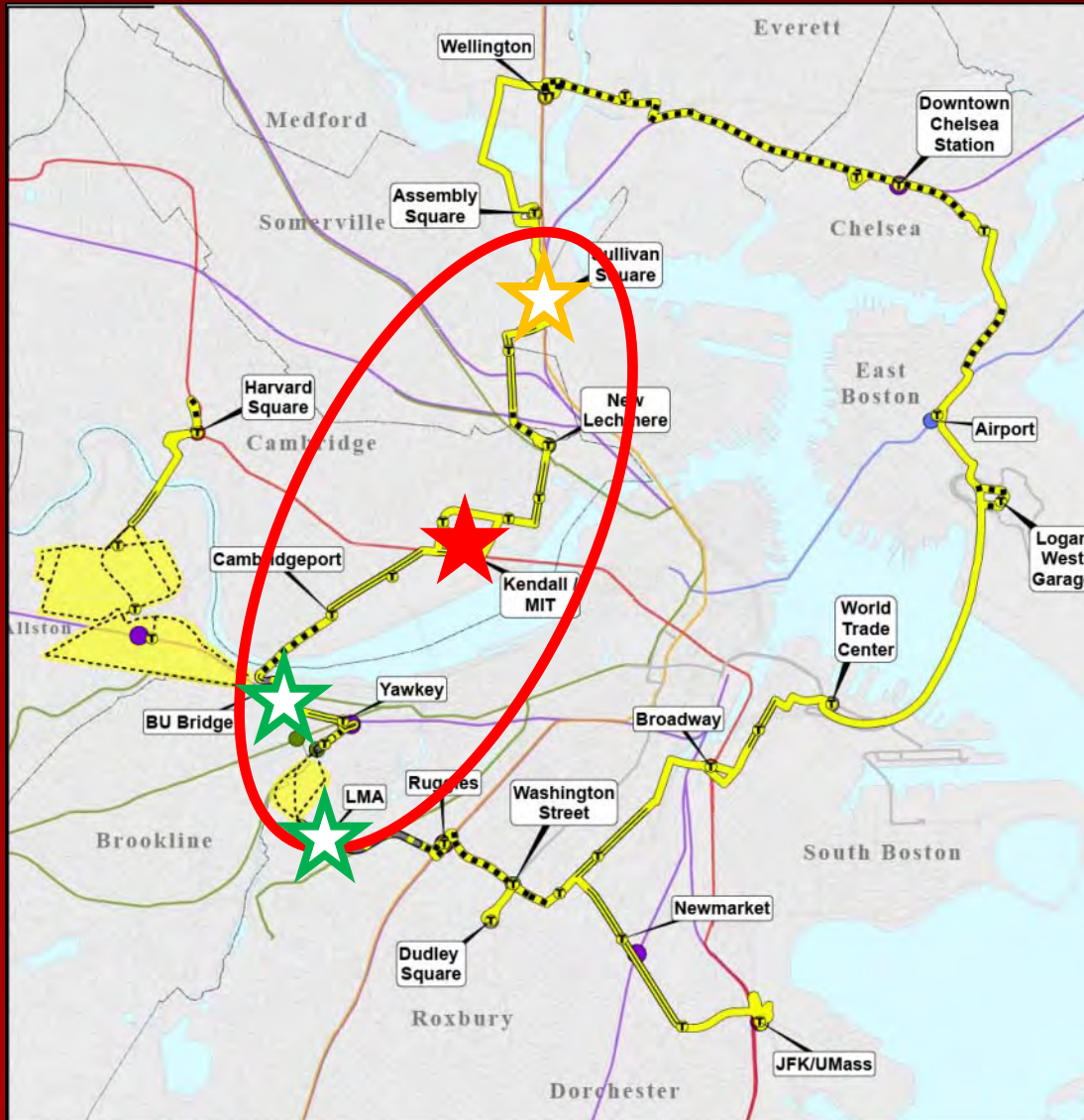


urban design/planning study for the **central** and **kendall square area**

PTDM Review - Top Towns



Sullivan – KENDALL - Longwood



Transit improvements in this corridor offer greatest Kendall benefit

Covers Areas of high demand and poor direct transit access

>Newton, Brookline, Watertown, Waltham

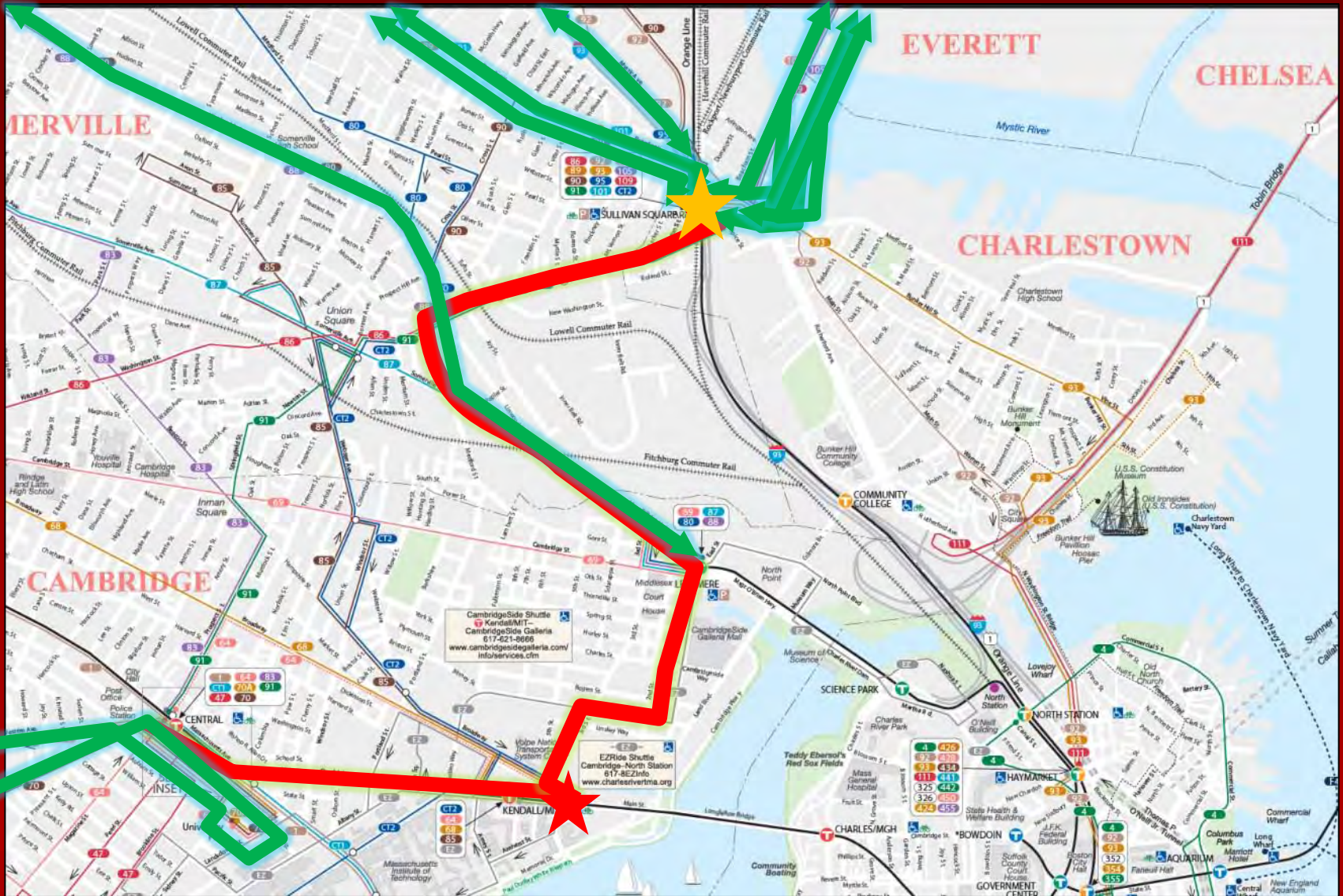
>Sullivan Square North towns

Potential Capacity – 1,920 peak hour trips

>Assumes 5 min headway (each direction)

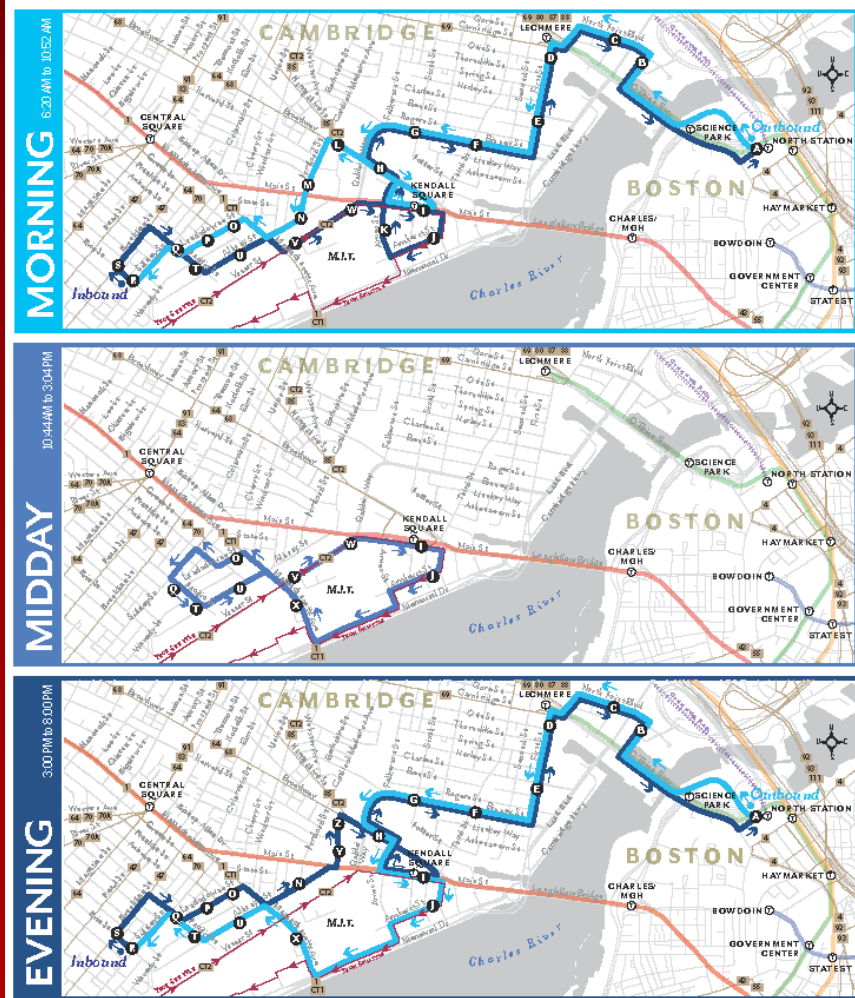
Connection to Research Hub

Extend Current Buses to Kendall From Central/Lechmere/Sullivan



EZ Ride Improvements

Extend Kendall Connectivity Quickly
EZ Ride Improvements can be controlled & more easily implemented



Enhanced Frequency

Continually Improve Connection

-Lechmere to Kendall

Provide Off-Peak Connections

>Lechmere

>North Station

Express Service or Direct Routing

-Reduces Travel Time

Possible Connections?

>Haymarket

>Sullivan/Community College

>Kenmore

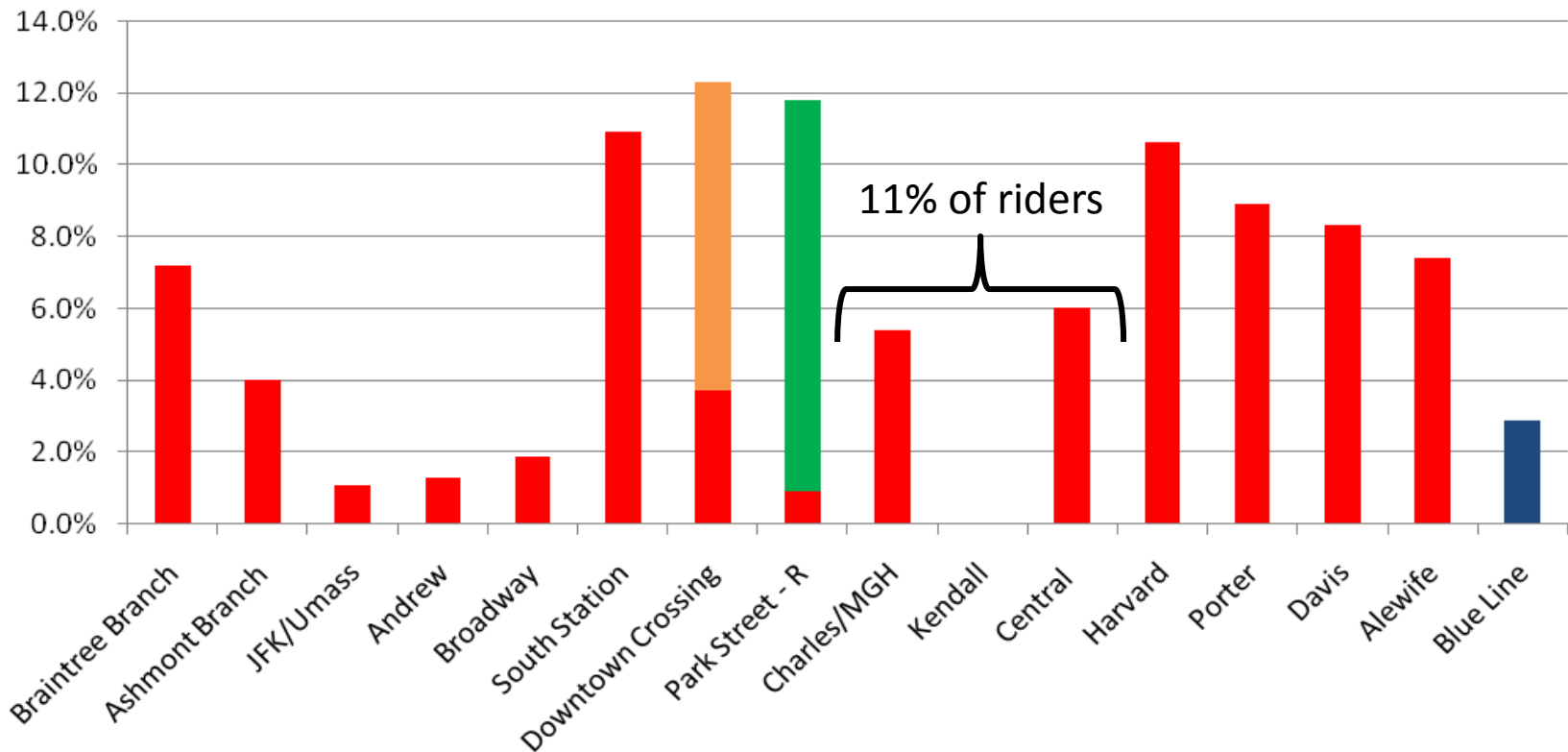
Expanded Membership/Funding

-Greater employer contribution

Integrating Transit with All Modes

Promoting combination trips

- Bike sharing from nearby Centers
 - North Station
 - Haymarket
 - Sullivan
 - Bowdoin
- Expanded bike parking at Alewife
 - North Station
 - Community College
 - Central
 - Charles MGH



Summary Analysis – Transit Expansion

Major Investments with Maximum KENDALL benefits

- Sullivan/KENDALL/LMA portion of Urban Ring
- Transit Bridge to Sullivan
- Charles River Crossing

Importance of Adjacent Connections

- >Lechmere
- >North Station
- >Sullivan
- >Community College/North Point
- >Haymarket
- >Central

Kendall Square should be a significant Transit Center

- Extend Buses from Lechmere, Central, Sullivan

EZ Ride Expansion

- Provide additional coverage AND frequency
- Significantly expand membership/funding

Advocate for continued MBTA systemwide expansion



From innovation in isolation...



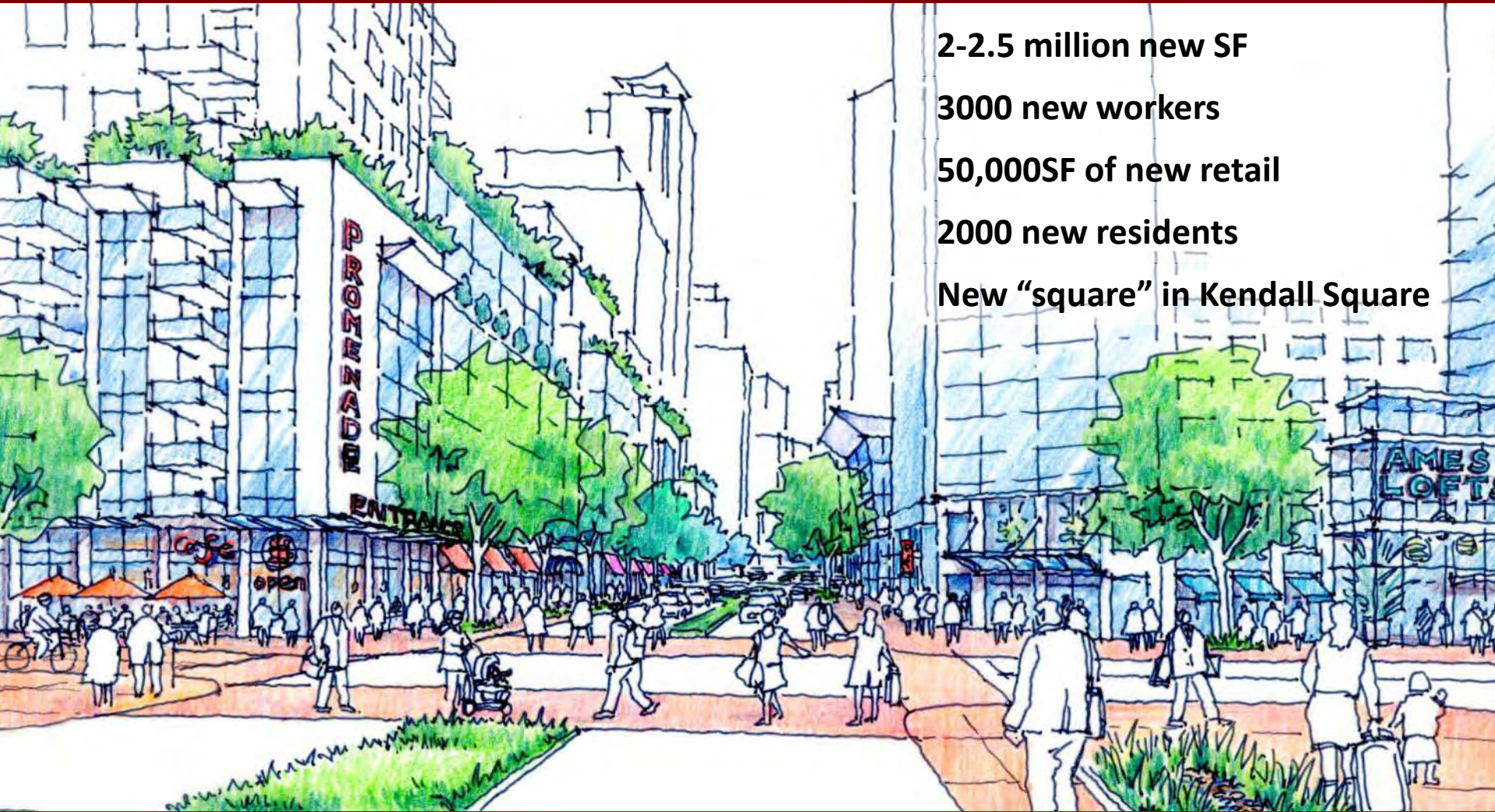
urban design/planning study for the **central** and **kendall square area**

...to innovation through collaboration



urban design/planning study for
the **central** and **kendall square area**

...to innovation through collaboration



2-2.5 million new SF

3000 new workers

50,000SF of new retail

2000 new residents

New “square” in Kendall Square



urban design/planning study for
the **central** and **kendall square area**

DISCUSSION



urban design/planning study for
the **central** and **kendall square area**