Reinventing Kendall Square for the 21st Century
Vision and Framework

PUBLIC MEETING
APRIL 10, 2012
Agenda

• Vision
• Framework
• Discussion
Values: Cambridge

Livability, community character, sustainability
Values: Neighborhoods

Livability, community character, sustainability

+ Synergies between neighborhoods, dynamic economic center
Values: Innovation cluster

Livability, community character, sustainability

+ Synergies between neighborhoods, dynamic economic center

+ Innovation community
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
CREATE GREAT PLACES THAT FOSTER COMMUNITY AND VITALITY

PROMOTE ENVIRONMENTAL SUSTAINABILITY

NURTURE KENDALL’S INNOVATION CULTURE

MIX LIVING, WORKING, AND PLAYING FOR CREATIVE INTERACTION

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.
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

GUARDING 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
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 ← X → MORE PERSONAL

- Gardens/Courtyards
- Roof Gardens
- Parks
- Plazas
- Promenades
- Residential Front Doors
- Educational/Cultural Venues
- Retail
Bring the core of Kendall to life...
The public space network doubles, fostering community, vitality, innovation... with a continuum of diverse, dynamic places...
...forming a *connected* network
...marked by signature public places
...enlivened by active street level uses
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
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
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

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

*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 Landsdowne Street
Floorplate approx. 27,500sf
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
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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


...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
...community benefits

Support for...

• Parks/public spaces (maintenance and programming)
• Workforce readiness programs and education
• Expanded transportation alternatives and demand management
SUSTAINABILITY in K2: Land Use Planning

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

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

<table>
<thead>
<tr>
<th>City</th>
<th>Walk</th>
<th>Bike</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minneapolis, Minnesota</td>
<td>4%</td>
<td>3%</td>
</tr>
<tr>
<td>San Francisco, California</td>
<td>7%</td>
<td>2%</td>
</tr>
<tr>
<td>Boston, Massachusetts</td>
<td>9%</td>
<td>1%</td>
</tr>
<tr>
<td>New York, New York</td>
<td>9%</td>
<td>1%</td>
</tr>
<tr>
<td>Berkeley, California</td>
<td>10%</td>
<td>6%</td>
</tr>
<tr>
<td>Cambridge, Massachusetts</td>
<td>13%</td>
<td>4%</td>
</tr>
</tbody>
</table>
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
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 a general way.
- Not a traffic engineering tool.
- Same methodology used in prior planning studies:
  - 2001 Citywide Rezoning
  - 2001 ECaPS
  - 2004 Concord-Alewife Plan
Intersections in Study Area
Calculating New Trips

NEW DEVELOPMENT

PERSON TRIPS

SQUARE FEET BY LAND USE

ITE RATE AND ACS FACTOR

MODAL SPLIT

PEDESTRIAN

TRANSIT

BICYCLE

VEHICLE OCCUPANCY RATE

PERSON TRIP BY MODE

CAR TRIPS

CAR TRIPS
New Development in 2030 – Daily Trips

Enhanced TDM

Total: 77,500 (approximate)

Auto: 30,000
Transit: 30,300
Walk: 9,100
Bike: 7,600

Total: 77,500 (approximate)
Conclusion

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

Multimodal improvements

Proposed Binney Street
Priority Pedestrian and Bicycle Connections

Neighborhood access through the Volpe block

River Connections
Pedestrian/Bike Connections
Pedestrian Nodes

Charles River
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

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

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

Support First St extension to O’Brien Hwy

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

Office and R&D
- Current: 51% Auto, 38% Transit, 6% Walk, 5% Bike
- Enhanced TDM: 41% Auto, 42% Transit, 7% Walk, 10% Bike

Residential
- Current: 36% Auto, 31% Transit, 24% Walk, 6% Bike
- Enhanced TDM: 32% Auto, 30% Transit, 25% Walk, 10% Bike

Academic/Institutional
- Current: 27% Auto, 41% Transit, 15% Walk, 14% Bike
- Enhanced TDM: 27% Auto, 42% Transit, 15% Walk, 14% Bike

Retail
- Current: 35% Auto, 29% Transit, 28% Walk, 6% Bike
- Enhanced TDM: 31% Auto, 30% Transit, 29% Walk, 8% Bike
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

<table>
<thead>
<tr>
<th>Use</th>
<th>AUTO PARKING</th>
<th>MIN. BIKE PARKING</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minimum</td>
<td>Maximum</td>
</tr>
<tr>
<td>R&amp;D</td>
<td>Based on analysis</td>
<td>0.8 sp/KSF</td>
</tr>
<tr>
<td>Office</td>
<td>0.9 sp/KSF</td>
<td>10% of person trips</td>
</tr>
<tr>
<td>Retail /consumer svc</td>
<td>0.5 sp/KSF</td>
<td>0.75 sp/d.unit</td>
</tr>
<tr>
<td>Residential</td>
<td>0.5 sp/d.unit</td>
<td>0.75 sp/d.unit</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>Use</th>
<th>Night</th>
<th>Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>100%</td>
<td>60%</td>
</tr>
<tr>
<td>Office/R&amp;D</td>
<td>10%</td>
<td>100%</td>
</tr>
<tr>
<td>Retail/Commercial</td>
<td>Require a shared parking study</td>
<td></td>
</tr>
<tr>
<td>Restaurant</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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: 768 Rush Hour Capacity
- Lechmere: 1,008 Rush Hour Capacity
- Central Square: 1,509 Rush Hour Capacity
- Sullivan Square: 2,434 Rush Hour Capacity
PTDM Review - Top Towns
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
- Pedestrian connections
  - North Station
  - Community College
  - Central
  - Charles MGH

11% of riders
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...
...to innovation through collaboration
...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