The following block size diagrams illustrate Denver’s South Lincoln homes neighborhood to those of other pedestrian oriented neighborhood districts.

All aerials are shown at the same scale.
PEDESTRIAN AND BIKE CONNECTIONS: CITY CONTEXT

• Most, if not all, neighborhood streets have sidewalks on both sides of the street.

• The plan illustrates regional green ways (bike and pedestrian trails) and local "on-street" designated bike lanes.

• Where are people going to and coming from? Origins and Destinations for commuter and residents include:
  - 10th and Osage Station
  - Auraria Campus
  - Downtown
  - Library
  - Schools (3)
  - Santa Fe Commercial/Arts
  - Hospital
  - Lincoln Park

• High school playing fields are fenced and are a major barrier for pedestrian movement down 10th. Speer Blvd./Cherry Creek and Colfax are barriers to pedestrian and bike movement.

• Planning for the site, and neighborhood should take into consideration future development and densities west of the tracks.

• Comments from previous plans
  - Better lighting is needed around Lincoln Park and Neighborhood (TOD Initiative)
  - Make clear connection to 10th and Osage Station and Lincoln Park (TOD Initiative)
  - Provide important Linkages (West high school, Auraria campus, Santa Fe (TOD Initiative)
  - Provide connections to west side of tracks (TOD Initiative)
  - Santa Fe and Lincoln Park Connections are important (TOD Initiative)
  - Some sidewalks are original sandstone

Pedestrian and Bike Connection Legend
- Parks
- Institutional
- Commercial/Office
- Heavy Rail
- Light Rail
- 10th and Osage Station
- Regional Trails
- Road with Bike Lane

Neighborhood Context: Pedestrian and Bike Connections
- The Denver Game Plan and Park System Master Plan identifies the Lincoln Park neighborhood as having more than 7.5 acres of park per 1,000 people.

- This area is one of the best served neighborhoods for parks and open space.

- The Game Plan also states that the Lincoln Park neighborhood exceeds City benchmarks for softball, baseball, soccer and multi-use fields.

- The neighborhood is also served by the Lincoln Park/La Alma Recreation Center.

Activities include:

**Recreation Center**
- Weight Room
- Public, Outdoor Pool
- Indoor Basketball
- Community Room
- Senior Center

**Park**
- Playground
- Outdoor Basketball
- Softball Fields
- Multi-use fields
- Community gardens
- Amphitheater
- Tennis Courts

**Parks and Trails Legend**

- Public Park Space
- Semi-Public/Institutional Open Space
EXISTING TREES

• The Lincoln Park neighborhood tree cover density is less than 5%.

• The project area tree cover density is approximately 10%.

• The American Forest Report suggests that a 25% urban tree cover offers substantial economic and environmental benefits.

• Denver’s Forestry Staff and The Denver Game Plan recommend a 15-18% tree canopy cover in urban areas.

• The Lincoln Park neighborhood has generous tree lawns along the street, nearly 15’ in width, which is promotes healthier growth of street trees.

• Primary Tree Species in project area include:
  - White Ash
  - Silver Maple
  - Cottonwood
  - Hackberry
  - Elm
  - Honey Locust
  - Black Locust
  - White Oak

• Damaged and trees in poor condition were determined by/ or the result of:
  - Excessive pruning near overhead power lines.
  - Damage sustained to the trunks or major branches, large trunk scarring and/or older trees that are near the end of their healthy life span, such as Silver Maples.

• The tree species most commonly damaged were Honey Locusts, Silver Maples, and Black Locust.
Water Quality Completed:

- Site size is 17.5 acres (includes City property between South Lincoln homes and Burnham Yard)
- Site Impervious = 83.23% (Denver Storm Drainage Master Plan)
- WQCv = 0.61 acre feet
- V10 = 1.35 acre feet
- V100 = 2.54 acre feet

It is assumed that the City will require V100 storage. However, the City may accept density bonuses for the redevelopment of the site which can result in a requirement of V10 storage for the project.

Hydrology Resource Flow Diagram
STORMWATER STRATEGIES

A "formal" courtyard garden provides infiltration and storage of storm water runoff. Murase Associates, Portland.

An Urban Neighborhood Park and plaza that filters storm water runoff and provides flood management. Tanner Springs Park, Portland.

Street scape planters provide increased infiltration and cleanse pollutants from storm water runoff. Portland.

Permeable modular paving can reduce site detention needs by providing rapid infiltration of storms. Denver.

Storm water management and natural landscapes are integrated into the streetscapes and frontage of this housing development. High Point, Seattle.

Street runoff is directed towards bio-infiltration areas located within the street ROW. Syskiiyou Street, Portland.
• There is approximately 4’ of grade change across the site. The high point is in the SE corner of the site, near Mariposa and 9th. The general slope is from SE to NW.

• The site is flat, with average slopes of 1.5% or less sloping to the west.

• Subsurface sands were found in nearly all test holes performed by the Geotechnical Engineer. (Ground Engineering)

• Soils are predominantly Type A, and range from sands, silty to silty/clayey, in composition.

• Sandy soils were encountered between 6” and 2’ below the surface.

• No groundwater was encountered in the soil borings which were dug to a 20’ depth.
**EXISTING DRAINAGE ANALYSIS**

The existing site has not been prone to localized flooding; however, adjacent area along Osage and the light-rail station has experienced some localized flooding. In-depth discussion will occur to see if the South Lincoln/20th and Osage redevelopment can support future drainage improvements.

Exhibit showing approximate contours, basin locations and flow rates based on information provided by the city and county of Denver basin 4600-01 - Cherry Creek.
THE PROPOSED PROJECT'S ESTIMATED UNITS OF 800 (WITH APPROXIMATELY 2.5 PEOPLE PER UNIT USING AN ESTIMATED 80 MILLIONS PER DAY) WOULD RESULT IN THE EXISTING 8" SANITARY SEWER LOCATED IN ORANGE STREET TO USE 60% OF ITS EXISTING CAPACITY. IT IS ANTICIPATED THAT ALL EXISTING COLLECTION SYSTEMS WOULD BE UPGRADED WITH THE PROJECT.

EXISTING SANITARY SEWER ANALYSIS

EXHIBIT SHOWING APPROXIMATE SANITARY SEWER LOCATIONS, SEWER SIZES AND MATERIALS BASED ON INFORMATION PROVIDED BY THE CITY AND COUNTY OF DENVER.
EXISTING STORM SEWER ANALYSIS

THE CURRENT EXISTING STORM SEWER IS UNDER CAPACITY AND IS ABLE TO CONVEY LESS THAN THE TWO 50 YEAR DESIGN STORM. IT IS PROPOSED THAT THE EXISTING STORM IN OSAGE WOULD BE USED TO CONVEY RUNOFF FROM THE PROPOSED PROJECT, WITH INCLUSION OF DETENTION AND WATER QUALITY.
DENVER WATER DEPARTMENT HAS CONFIRMED ADEQUATE PRESSURE AND DEMAND AVAILABILITY TO THE SOUTH LINCOLN/10TH AND OREGO REDEVELOPMENT SITE. IT IS ANTICIPATED THAT ALL INTERNAL DISTRIBUTION WOULD BE UPGRADED WITH THE PROJECT. AVERAGE PRESSURE IN THE SITE VICINITY IS 70 PSI.

EXHIBIT SHOWING APPROXIMATE WATER MAIN LOCATIONS AND WATER MAIN SIZES BASED ON INFORMATION PROVIDED BY THE CITY AND COUNTY OF DENVER.
CLIMATE

- Cold Winters
- Warm Average Temp Summers (Hot peak Daytime Temps)
- Low precipitation, with most in April - Aug
- Most of the Energy is needed under the HDD curve – i.e. cold winters
- Moderate CDD and minimal energy under the curve
- Listed as Moderate Resource – Category 2 (not good sustained wind, gusty wind)

Wind resource map: Denver mapped as Class 2, marginal for sustained wind generation
ENERGY AND GREENHOUSE GAS EMISSIONS

This graphic describes the current, existing conditions at South Lincoln Homes. The resource flow diagram measures the baseline energy used on site, including utilities and transportation, and the resulting amount of greenhouse gas (GHG) emissions annually.

ENERGY INPUTS

Electrical Energy
- 20% of the Site energy is Electrical – mostly summer cooling load

Natural Gas
- 80% of the site energy consumption is Natural Gas – which correlates to the Heating Degree Days area under the curve for late Fall thru early Spring

TRANSPORTATION
- Census data shows that this area of Denver has fewer cars and travels less per trip than surrounding Denver & Greater Denver suburbs

Solar Input
- >300 sunny days a year contribute to a large solar resource available to the site. Only 25% of the existing roof area is needed today for photovoltaics to supply the site electrical demand.

GREENHOUSE GAS EMISSIONS

- Despite Natural Gas supplying 80% of the energy demand, only 25% of the emissions are attributed to Natural Gas. This can be seen by the breakdown of the electrical supply fuel mix – over 57% is supplied by burning coal.

The redevelopment of South Lincoln homes represents a significant opportunity to improve the energy performance of the homes and neighborhood, particularly with the solar resources available. In addition, the location adjacent to the 10th & Osage light rail station and potential for improved walkability and transit connections can significantly reduce auto usage, creating a walkable, low traffic neighborhood. The reduction of energy usage and vehicle miles traveled (VMT) can have a positive impact on future GHG emissions of this community.
REGIONAL MARKET CONTEXT

PRELIMINARY FINDINGS

• According to a recent study by Builder magazine and Hanley Wood Market Intelligence, Metro Denver ranks 12th among the nation’s 75-healthiest housing markets. The report recognizes Metro Denver’s stable home prices, population growth, and relatively strong commercial real estate market as factors that will help the area recover more quickly from the housing downturn.

• A recent ranking by Forbes magazine calls Metro Denver the nation’s sixth-best housing market. The ranking is based on factors that measure the overall drop in prices, the deceleration (or acceleration) of home price declines, and the amount of equity lost by homeowners.

• Metro Denver is less likely to struggle with “distressed” retail real estate than many other metropolitan areas, according to a recent study by Madison Marquette. The study ranks 63 metro areas based on retail vacancy, the velocity of increases in vacancy, net absorption, the inventory pipeline, and pre-leasing. Metro Denver ranked 22nd among the 63 areas.

INITIAL OBSERVATIONS

MARKET POSITIONING QUESTIONS

- How does South Lincoln relate to Auraria; Downtown; the Denver Design District; the Santa Fe Arts District?
  - Pricing?
  - Access?
  - Perception?
  - Amenities?
  - Critical mass?
  - Timing?

- Office: Any office development will likely need to be user driven because this is not likely to emerge as a viable spec office location. Given the state of the commercial market, early stage discussions with other owner-users drawn to the light rail access may provide a catalyst:
  - Non-Profits
  - Government agencies
  - Corporate headquarters

- Retail: The retail trade area may not support a substantial amount of new space within the project beyond supporting retail. Connections to Santa Fe and other existing commercial centers will be key.

- Rental Housing: All things considered the rental housing market has held up fairly well. There is the potential, however, for condo projects nearing completion to convert to rental and over supply the market.
  - $1.30-$1.50 Per SF/Month apartment rental rates

- Denver is currently experiencing a boom in Transit Oriented Development (TOD) communities like those located along Denver's FastTracks commuter rail lines, and an increase in demand for rental product within the Downtown area. These communities offer residents easy access to Denver's social districts like Lower Downtown (LoDo), Riverfront Park, and Cherry Creek. They also include amenities that modern residents are looking for: hardwood floors, stainless steel appliances, and granite counters. These communities are currently collecting premium rents ranging between $1.50 and $1.70 per square foot.

- For-Sale Housing: Typically maximizes residual land value but will likely need to be pushed into later phases to allow for market rebound. May need to reach out beyond submarket to identify pricing in comparable (high amenity, TOD, etc.) projects.
  - Current range: $240-$290 Per SF residential Stacked Flat Condo Sale prices
FINANCIAL MODELING CONTEXT

INITIAL CONSIDERATIONS:

PHASING

- The first phase of development will likely be driven by one or more of the following:
  - Available funding
  - Housing types that can be relocated first
  - Efficient infrastructure phasing
  - Partnership opportunities

THE GAP

- Defining the gap for each conceptual alternative early on in the process will help focus the design effort on the most viable programs and solutions.
- The market rate housing and other uses that are incorporated into the master plan represent the primary opportunity (outside of external funding sources) to close “the gap.”

The open questions associated with capturing this value include:
  - Is DHA limited to only the sale or ground leasing of land for market rate development or could it participate as a JV partner?
  - What is the highest density construction type that will be feasible in the first phase? Given the PH program what might the land yield in units and net revenue?
  - How might green infrastructure funds be introduced into the project to both reduce the capital cost and the long-term operating costs?
  - What types of partnerships could be formed that allow DHA to leverage the value of their land asset and reduce the capital requirements of the project?

PARKING

- The parameters of a parking strategy should be defined early in an effort to develop strategies to dramatically reduce the negative impact of higher structured parking costs.
  - Car sharing
  - Pooled parking
  - Lower parking ratios
  - On-street parking
  - Etc.
TRANSPORTATION OPPORTUNITIES AND ISSUES AS IDENTIFIED BY STAKEHOLDERS

Station Area: somewhat isolated from South Lincoln Park Homes

Low trip generating land uses = low traffic volume on most streets (Lincoln Park to the north and single-/ multi-family to the east).

Low parking demand due to low commercial & retail presence; RTD expressed concern of students parking vehicles for free near station and then board light rail.

City considered purchasing Burnham Yards industrial development; currently off the table.

Block dimensions not pedestrian-friendly; long & rectangular at approx 250x600.

Three station areas within ½ mile radius: South, Lincoln, Auraria West, and Decatur.

Mariposa St: • Best north-south route • Currently overly wide • TOD will increase volumes here and east-bound W 9th Ave, W 10th Ave, W 11th Ave, & Kalamath St • As a connector, should link either W 8th Ave (main arterial), W 9th Ave, W 10th Ave, or W 11th Ave.

Grid & sidewalks improvement project underway on W 11th Ave along Kalamath St and Lipan St.

With TOD, W 8th Ave may need widening

One-way couplets Santa Fe Dr and Kalamath St have very high traffic volumes; that and timed lights cause bike / ped conflicts

Better access and signage needed from station to Santa Fe Dr & along W 10th Ave

Most trips are east-bound; thus low demand near station

No bike / ped route to station; no visual cue or infrastructure apparent

ROW parking available near station and neighborhood

Pedestrian crossing issues at Cofax Ave, Santa Fe St, and Kalamath St; perhaps issues elsewhere if street vacations occur.

THE BUSINESS OF HOUSING.

DENVER HOUSING AUTHORITY
10TH & OSAGE STATION AREA PLANNING

The Station area planning effort for the 10th & Osage RTD station began in early 2007. This work, which has included a public outreach component, provides a strong foundation for South Lincoln Redevelopment master planning. The Key Focus Areas (KFAs) developed in conjunction with DHA’s Resident Advisory Committee (RAC), provide a basis for the South Lincoln Redevelopment Project Goals. The Station Area Planning concepts address these important key issues:

• OPEN SPACE

• CONNECTIVITY

• URBAN FORM

• PLANNING HORIZON

Station area planning: Land Use, courtesy of Crandall Arambula

Station area planning: Primary Pedestrian and Bicycle Connections, courtesy of Crandall Arambula
Several performance metrics were evaluated to determine relevant rating systems for the South Lincoln Redevelopment Masterplan. The chart to the right summarizes a range of possible metrics, from the scale of individual buildings (Energy Star, Architecture 2030) to a whole-community perspective that considers social and economic well-being and health considerations, as well as energy efficiency and green development practices.

While green building and energy efficiency are important goals for this project, we recommend pursuing the more comprehensive view represented by the Healthy Development Measurement Tool (HDMT). Developed by the San Francisco Department of Public Health, it incorporates a wide array of considerations important to the scale of the South Lincoln undertaking and the number of lives this project will affect.

The team has reviewed and customized the HDMT for the South Lincoln Redevelopment Masterplan, acknowledging in particular the importance of DHA’s commitment to Human Capital development, in part through the HOPE VI Community and Supportive Services (CSS) element. This customized, South Lincoln HDMT can be found in the appendix of this document.