II. SITE DEVELOPMENT

A. Professional Competence

All design and/or consulting work for any full or partial site development is to be done by, or under, the supervision of a Landscape Architect, or site planner. City projects need to go through the City Plan process.

B. Site Analysis

Conduct a study to document all the site factors that physically, environmentally, and aesthetically affect the site. See Figure 1.

The physical aspects of the site analysis should include the following:

1. Climatic information; soils report indicating existing site soils condition for structural foundation design, geologic hazards, flood plain information, topographic and legal survey plan
2. Land use survey of proposed site(s) and adjacent sites
3. Site utilities services information, location, size and capacity
4. Topography
5. Site drainage
6. Orientation
7. Traffic data affecting access to the site with respect to bikes, pedestrians, cars, service vehicles and firefighting equipment
8. Transit routes that service the site
9. Traffic data affecting access to the city traffic network
10. External site noise impacts
11. Visibility views from the site
12. Considerations regarding long term planning impacts with respect to adjacent land development, roads and public transit
13. Recreation areas, i.e. golf course, trails, lake, park, etc.
14. Existing vegetation (trees & shrubs)

15. Wildlife habitat and natural areas

16. See Appendix J – Construction, Deconstruction or Demolition Waste Diversion Policy.

Figure 1
The **aesthetic** aspects of the site analysis should include the following:

1. A basic understanding of the lay of the land, to determine the site’s uniqueness
2. A philosophy on how one would either preserve, enhance, or advantageously use existing conditions
3. A determination whether the site itself has any redeeming qualities that should be retained and/or reinforced - how the community/environment may be used to enhance the site development/building design
4. The identity of natural or man-made elements that may contribute to physical aspects of the site design with respect to orientation, sun and shade, weather protection, energy conservation, drainage, access and approach to the site/building

### C. Zoning Requirements

Conduct a study to determine all requirements governing lot coverage, setbacks, height restrictions, land use, etc., and how they may impact long-term considerations with respect to future expansion and alternate uses as applicable.

### D. Jurisdictional Requirements

All governing jurisdictional authorities must be contacted and their requirements satisfied in their respective area of input.

### E. General Design  (See Figure 2.)

1. The general design of the landscaping layout is subject to the approval of the City of Fort Collins Parks and Recreation Department; general site work to follow Storm Drainage Department’s standards; and overall design to follow City Plan.
2. The proposed building and its location on the site should present a positive image to the community and the environment. It should present a design image that is compatible with and is sensitive to the requirements of the users and the public alike.
3. Entry to the building is to be approachable and friendly. It should also relate to the "center of gravity" where the most of users would come from; either pedestrian or vehicular. Design for universal
access (ie: ambulatory and non-ambulatory people as well as able-bodied people).

The entrance to the building should be oriented if possible southward. The entrance should be visible from the public thoroughfare. Provide a point of orientation for persons visiting the building.

The building should not present a "back wall" to the neighborhood.

4. Xeriscape landscaping should be incorporated into the site development as a means to conserve water usage and lower maintenance costs.

5. Consider future horizontal expansion for buildings such as administration facilities.
Consider vertical expansion of buildings to preserve open space or adjacent buildings. Vertical expansion of buildings tends to be more costly and disruptive to existing building operations than horizontal expansion and requires the provision of adequate structural design, future parking and utilities. In either case, the site design should accommodate future building expansion with minimal disruption and cost. Location of site utilities should be determined with expansion plans in mind.

Consider conversion of surface parking lots to multi-level parking structures to provide for building expansion when land is scarce and the intensity of new development can off-set the additional costs of the parking structure.

F. Existing Features

1. Preserve existing site features and integrate them with the new site design. This pertains not only to the use of existing trees, shrubs, rock and water, but also includes those elements, vistas, other buildings, outside the property lines which may have influence on the total space composition.

2. Insure preservation of all useful topsoil and the protection of all areas, grades, etc. which should not be interfered with during construction operations.

3. The use of existing trees must depend on their health, life expectancy and risk of damage during construction. Their root systems, and the immediate grade above, should remain undisturbed. If changes of grade are required close to a tree, provide the proper measures for its continued health.
G. Impact on Neighborhood

1. The surrounding neighborhood, if residential, should be buffered from noise and light created by automobiles on the roadways and in the parking lots and roadway/parking lighting.

2. Orient service areas away from public view. Develop service traffic routes so as to minimize conflict with automobile traffic.

3. Without reducing the ability of the building to function properly, the site should be developed to emphasize the provision of open space and minimize the intrusion of the building design.

4. Orient the areas of the building which have more potential for visual interest towards the public streets.

5. Use a planted earth berm or a dense evergreen buffer for site edges where visual screening is needed, such as between incompatible facilities and land use areas or between parking areas and a building or street.

6. The development should be compatible with and sensitive to the immediate environment of the site relative to architectural design; scale, bulk, and building height; identify historical character; disposition and orientation of buildings; and visual integrity.

H. Site Layout

1. Design the site layout simultaneously with that of the building to insure optimum compatibility. Take into account all services, and areas scheduled for future building expansion or future connections to other buildings and proposals.

2. Use hard and soft landscaping to create desirable space organization, open and close areas, privacy, enclosure, exposure
or emphasis of certain site aspects, views, etc. Coordinate the character and massing of grading, trees, shrubs, site structures, etc. with that of the building and adjacent property.

3. Take into account climatic factors, orientation, prevailing winds, snow drifting and the microclimate.

4. Provide proper access and clearances to suit Poudre Fire Authority requirements.

5. The site landscaping should be developed in a manner which will allow visual and active enjoyment by the building personnel.

6. Locate any building loading docks and dumpsters off-street and out-of-sight of main roads and building entrances; employ appropriate fencing and/or planting to screen docks and other areas of low visual interest from public view.

7. Create out-door open spaces between buildings that relate buildings together and convey an appropriate scale, character and quality for their intended use.

8. See LEED Reference Guide on Sustainable Sites for design strategies to incorporate into the project for LEED credits.

I. Site Maintenance

1. Design to assure easy economical maintenance to suit an equipment-oriented maintenance program.

2. Arrange grading to insure positive drainage, but avoid steep slopes. If these are inevitable, use a ground cover that reduces maintenance to a minimum. Avoid deep ditches with steep sides.

3. Where possible arrange planting, screening, etc. to inhibit snow drifting that may occur across walkways, roads and parking areas.
4. Arrange parking areas to allow maneuvering of snow plows.

5. Allow sufficient room for tractor power mowers, snow removers, etc. to maneuver. Keep grass areas large and simple with no awkward inaccessible corners.

6. Consider the use of mowing strips adjacent to all buildings, fences, etc. Edging must be provided around all plantings and have a weed control blanket underlaying of polyester.

7. Provide adequate watering facilities. Underground sprinkler systems should be used where justified by the design, importance of the project, drought possibilities, etc.

8. Provide proper access for maintenance, repair, and delivery vehicles.

9. If due to site constraints, a building entry is facing north to northwest, provide for an ice melt system at the entry and along routes to the entry.

J. Circulation

1. Pedestrian connections between buildings should be safe, avoiding walkways that cross roads or parking lots.

2. Distance from parking spaces to building entrance should be convenient.

3. Distance from public transit and automobile drop-off points to building entrance should be convenient.

4. The pedestrian routes from drop-off points and parking areas should be sheltered from winter winds by planting or shielding and, if possible, provide protection from rain and snow. Care should be taken not to create a personal security problem.
5. Design the site circulation to provide for:

a. Pedestrian movement; including the disabled

b. Visible movement; unloading and parking, convenient roadway access

c. Illumination; using current IES recommendations for average, minimum and uniformity

d. Service vehicles; convenient roadway access; unloading/loading; turning; and short term visitor parking

e. Bicycles

6. If the site is adjacent to an existing or future public park, public open space, public trail system, or the like, provision should be made to allow public access through the site to these areas, as appropriate and needed.

7. Public transportation: the City encourages the use of public transportation among employees and visitors. The need for a bus stop should be considered early on and discussed with Transportation Services.

K. Roadways

1. Keep the road system for vehicles to a minimum and avoid unnecessary paving of large areas. Provide visitors parking near main entrances, with convenient drop-off zones. Public transportation loading zones should preferably be close to building entrances. Bus traffic, when planned for on the site, should not interfere with peak traffic flow from parking areas.

2. Road construction shall be designed to accommodate heavy vehicles (i.e. service and firefighting) where applicable.
3. Roadways must interface with the adjacent public streets in a manner which will minimize disruption at existing intersections and yet allow for the most efficient exit and entry of building personnel.

4. Locate and develop roadways and parking in such a manner as to facilitate cleaning, snow removal and other associated maintenance and repair operations.

5. Planting of shoulders and medians should be of low maintenance plant materials.

L. Walkways

1. Walkways, including pedestrian ramps, shall be of non-slip concrete, asphalt or interlocking paving stones, minimum 5'-0" wide and 6'-0" wide where mechanical snow removal equipment is to be used. Limit cross slope to 1/4 inch per foot.

2. Provide adequate access for disabled persons to each building.

3. Avoid the use of walkways intended for occasional shipping, receiving or service vehicles. Provide deliberate loading bays or convenient curbside access. Do provide emergency vehicular access where required or directed.

4. Provide ample hard surfacing at building entrances. Consider the use of alternative surfacing such as hard-baked bricks, asphalt, paving blocks, concrete slabs with colored or textured finishes. Surfaces shall stand up to snow removal operations and de-icing agents.

5. Curb ramps shall be designed to avoid cross slopes over 1/4 inch per foot along a walkway.

M. Parking

1. Conform to City zoning requirements/Guidelines.

2. Provide adequate parking for staff, visitors including disabled and service vehicles. Arrange for disabled parking and access aisles to be as close as possible to main entrance of building. Include disabled van accessible parking and access aisles at a rate of 1 for every 8 disabled parking spaces. Comply with ADAAG for disabled parking space sizes and access aisle requirements.

3. Locate parking areas where they will not detract from the aesthetics of the building and landscaping, but will still be easily accessible.
and functional. The walking distance to the building entrance is governed by the specific uses of the building. As a rule of thumb, limit the walking distance to building entrances to 500'. Up to 780' may be approved in extreme circumstances.

4. Avoid large single parking lots. Use landscaped islands, screen planting and trees. Insure they do not interfere with driver's vision or with snow removal and storage. Locate walks clear of the overhang of cars parked up to curbs. Use hard surfacing under such overhangs.

5. Provide service areas large enough to maneuver trucks without excessive pavement. Minimize the need for backing up.

6. The service area should also be isolated visually and physically as much as possible from circulation patterns to minimize impact/traffic crossovers and noise.

7. Small parking lots are usually preferable to large lots, as they enhance the visual environment by increasing the percentage of landscaped area to paved area and allow more conformance to natural topography. The unrelieved monotony of large parking areas may be altered by developing alternative designs, such as curvilinear plans.

8. When islands are used to separate parallel parking bays, the minimum width should be 12' to provide a margin between over hanging bumpers and plants.

9. Earth berms can effectively screen parking lots from street view. Planted earth berms along the perimeter of the lot facing a street should be designed relative to the 52" viewing height, or eye level of a motorist.
N. **Snow Clearing**

Design for ease of snow removal incorporate adequate snow storage areas, clear of low planting and graded for good run-off. Locate them, preferably, at one or both ends (not sides) of the parking lot and/or grass-covered islands. Where snow storage space is limited, design lots slightly oversize to allow for temporary snow storage. Artificial mounds should not aggravate snow drifting problems, particularly across walks or paved areas.

O. **Grading and Drainage**

1. Design finished grades to provide positive drainage of all lawns and paved areas. Allow no drainage of surface water towards buildings, pools, or onto neighboring property.

2. Slope of grass lawns should be between 1-1/2% and 6%.

3. Slopes in excess of 6% are considered berms or hillsides and are to be approved by Parks and Recreation Department.

4. Treat unpaved slopes steeper than 4:1 (25%) with ground cover, riprap, retaining walls or some other means. Grass is not recommended.

5. Consider the design value of grading to enhance visual effects and to achieve economy in the use of on-site material, although this may not be the prime consideration. Try to avoid the need to move large volumes of soil. Grading in the vicinity of existing trees to be retained should be avoided.

6. On-site material may be used to create visual barriers or mounds, acting as screens for the deflection of wind and noise, and for the guiding of traffic in desired directions. Use mounds only if the site is large enough to permit long naturally blending slopes. Round off the tops and bottoms of all slopes to avoid sharp transitions. Do not place material on areas of potential and/or future development.

7. Design for fast drainage of areas where snow will be stockpiled. Direct the drainage towards gutters to minimize the effect of de-icing agents on lawns. Minimize drainage over sidewalks. Avoid the use of culverts.

8. Avoid the use of ditches and flumes. Design swales to handle maximum run-off, allowing for snow build-up but make them as
shallow as possible for ease of maintenance. Where depth is excessive, use catch basin.

9. Design swales to have a minimum grade of 1-1/2% with side slopes not in excess of 4:1. Minimum swale depth is to be 6”. Maximum swale depth is variable, but, in any event, swale depth is not to exceed 20”.

10. Design drainage to the naturally lower edge of a parking lot rather than the center of the lot.

P. Retaining Walls

Maintain a realistic cost relationship between foundation and above-ground construction of low retaining walls and walls for planters. Consider alternatives such as dry stone walls, concrete cribbing, treated wood, flat foundation on gravel filled trench. Riprap may be used if compatible with the project. Avoid using small and/or loosely placed members susceptible to being dislocated.

Q. Art in Public Places (APP)

The City has an APP Program. Contact the Director of Cultural, Library, and Recreational Services for specific requirements.

R. Topsoil, Lawns, and Planting

1. Existing site topsoil shall be re-used.

2. Plant material must be from areas with similar climatic conditions to the site. Planting plans should incorporate plant types best suited to the site, and most likely to transplant successfully and giving vigorous growth within the second year following transplant. The use of native container stock is encouraged.

3. Street trees should be located between the sidewalk and buildings, leaving the strip between the sidewalk and curb free for installing and servicing underground utilities. City Forestry office needs to review types of trees proposed.

S. Instant Landscaping

1. This is preferred and is the special use of plant material to achieve an immediate landscaped effect as follows:
a. By planting trees and shrubs sufficiently large to guarantee quick establishment and vigorous growth. Do not, however, specify trees of such sizes that cost becomes prohibitive and survival doubtful.

b. By mass-planting of limited varieties.

c. By close-spacing plants which can be thinned out later.

d. By planting fast growing trees in combination with slower growth more permanent varieties. The faster growing trees may be thinned out or removed in later years when the permanent planting is large enough.

T. Miscellaneous Site Features

1. Design miscellaneous site features to complement the overall site treatment and relate their design and use of material to the building.

a. Site Structures

Coordinate the design, location and elevation of all supporting site structures such as transformers, gas valves, bus shelters, etc., to ensure compatibility with all project features as well as the entire site.

b. Planters / Seating Walls

These may be included on large paved areas near entrances and in courtyards. Where they form part of a permanent
structure, specify sufficient insulation to reduce frost penetration from the sides. Provide positive drainage by means of granular, weeping tiles, drainage holes. The best method would be to provide for a 6" layer of clean gravel and drainage holes. Locate holes to avoid staining walls or pavement and specify a 1/4" layer of fiberglass filter mat to separate gravel and topsoil. Planters should be heavily planted to reduce hand weeding. Specify the application of a water proofing coating.

Pitch the seating surface 1/8" per 12" to allow surface water to drain back into the planting bed.

The seating surface should ideally have a 4" overhang from the planter wall for heel space and facilitate rising from a seating position.

Provide 2'-0" for leg space in front of the seat edge to avoid impeding pedestrian traffic.

Use dull and light colored materials for seating surfaces that will be in direct sunlight to keep them cooler. Use dark and shiny surfaces only in shaded locations so they do not become uncomfortably hot in the direct sunlight.

Vegetation near seating walls should not conflict with pedestrians or people sitting; avoid species that are invasive, injurious or that shed excessive or staining debris.
2. **Fencing and Walls**

   a. Coordinate the design of perimeter fencing, walls, site screens, decorative walls, etc. with the general landscaping treatment.

   Walls and fencing should be used appropriately for the following functions:

   - Security
   - Boundary definition
   - Visual screening
   - Wind Screening
   - Pedestrian and vehicular traffic control
   - Retaining soil (grade change)
   - Recreational ball screens (tennis, etc.)

   Walls and fencing should be of appropriate design and materials to fulfill their function harmoniously with the character and appearance of their setting.

   Chain link type fencing should generally be limited to uses such as security fencing, general boundary fencing or tennis court fencing. All fences shall have an 18" concrete mow strip (9" from fence center-line). City Plan may overrule these requirements.

   Wood or masonry walls and fencing are generally the most compatible and harmonious materials for use in residential environments.

   Trash containers should be screened effectively with opaque fences or walls of appropriate design and materials compatible with the architectural character and setting.

   Earth berms and plant materials are preferable to either walls or fencing when screening parking lots, loading and storage areas, or similar functions from view along main roads.
b. Unless specifically designed for security purposes, fencing should not present any unnecessary dangers for people who might be tempted to climb over.

Support posts should be adequately strong and properly anchored to the ground so that the fence will not collapse under either high winds or the weight of a climber.

The fence material should be well-secured to all posts.

Fencing should be free of all dangerous appendages or projections that would be injurious to persons on an adjacent walkway or play field; all exposed fastening devices and material edges should be rounded off, knuckled or capped to prevent cuts and abrasions.

All slatted fences and railings should avoid horizontal or vertical spacings where children's heads might easily be caught between members.

c. All necessary low wall designs should consider the possibility of incorporating seating surfaces, if appropriate.

Weep holes and wall drains should not drain onto and across walkways where they could create slippery ice spots during the winter months.

4. Benches, Seating and Tables

Locate seating oriented to user needs of waiting and resting adjacent to paved walkways, entry-ways, and plazas, near the tops and bottoms of major stairs and ramps, at bus stops and other locations deemed appropriate by anticipated need and use.

Locate seating oriented to user needs of socializing, relaxing and eating in less formal spaces with a pleasant setting and view that are conducive to their intended purpose.

Seat fronts should be set back 2'-0" from adjacent sidewalks to provide ample leg room and not to impede or obstruct pedestrian traffic.

A space of 4'-0" should be provided at the end of benches to enable strollers and wheelchairs to be parked.
A space of 5'-0" should be provided between the front edge of the seat and any stationary obstacle such as a water fountain, trash receptacle or sign post.

Especially where longer-term sitting occurs, seats should be designed with back supports, contoured seats and arm rests for comfort in sitting and support in getting up and down from the seat.

Seat height should be 18"-20" from the ground and be uniform and level.

Seat depth should be 12" minimum to 18" maximum (16" ideal) and be pitched back at an angle of 0-5 degrees to the horizon.

Seat width should be 24" per person.

Back rests should be 15"-18" high (16" ideal and at an angle of 90-110 degrees to the seat (105 degrees ideal).

Arm rests should be 6" high from the seat and be a minimum width of 1 ½".

The seat should overhang the support legs by a minimum of 4" to provide heel space and to facilitate rising from a seating position.

Seat surfaces should be pitched or slotted to shed water. Seats should be constructed to support a minimum of 250 pounds for each person they are designed to accommodate.

Seat surfaces should be smooth and constructed of materials that do not tend to either retain heat or cold, or splinter. The recommended wood seating surface is Redwood. Recycled plastic/vinyl products also should be considered.

Seats should have no sharp edges or protruding hardware.

All wood should be non-splintering and have rounded edges.

All metal should have rounded edges and be rustproof.

All mounting hardware should be concealed, recessed and/or plugged.
Seating in areas subject to vandalism should be selected with care for firm anchoring to the ground and durable materials.

5. **Signage**

The goal of a well designed site should be to use as few signs as possible. Follow City’s standards and:

- Provide signs only where a need exists.
- Ensure that the placement of signs relate to their function.
- Provide signs that are visible and designed to attract viewer’s attention.
- Provide signs that are harmonious with their architectural and natural setting.
• Ensure that all signs are legible.
• Provide a hierarchy of information that conveys information in the sequence most beneficial to the viewer.
• Conform to the ADAAG sign requirements for persons with disabilities.
• Facilitate changes or incremental additions and deletions to the sign as needs arise.
• Consider a sans-serif type style of lettering such as Helvetica medium as it is easily read.
• Building address signage shall conform to Poudre Fire Authority standards.

6. Outdoor Lighting

Provide outdoor lighting at strategic points, near entrance steps, walkways, loading ways, parking areas, and at those locations where regular evening traffic can be expected. Lighting adjacent to a residential zoned area should be shielded from that area.

7. Flagpoles (If designated or required)

Location: Flagpoles must be located in prominent positions clearly visible to the public and generally related to the main entrance - at grade or attached to the face of the building directly above or near the main entrance. Lighting of the flag should be included in the design.

If installing three flagpoles, the center flagpole must be higher than the adjacent flagpole.

8. Special Features

Any special design features such as fountains, pools, elaborate courtyards, etc., require justification in terms of the project size, importance, prestige value, location and use, etc.