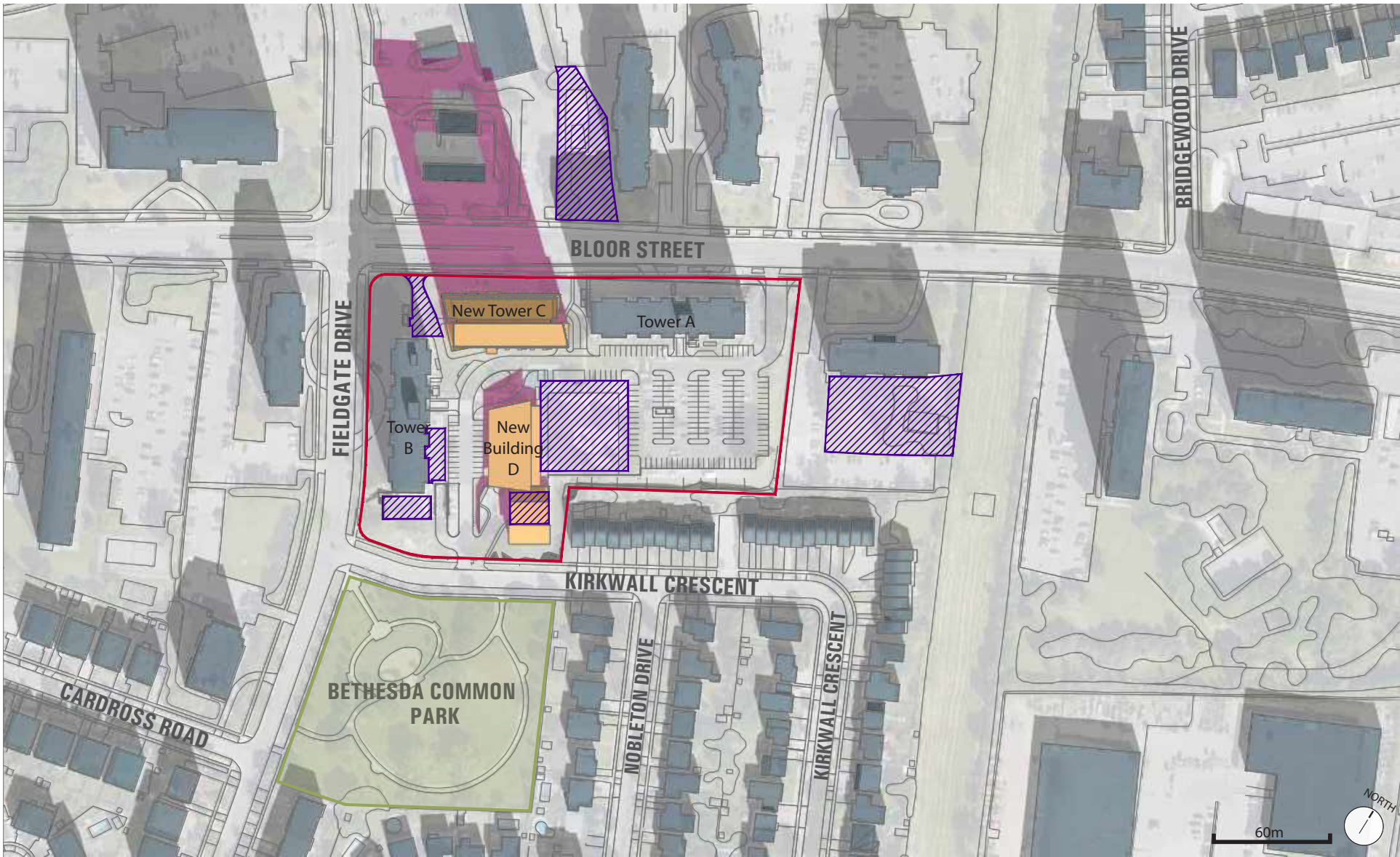
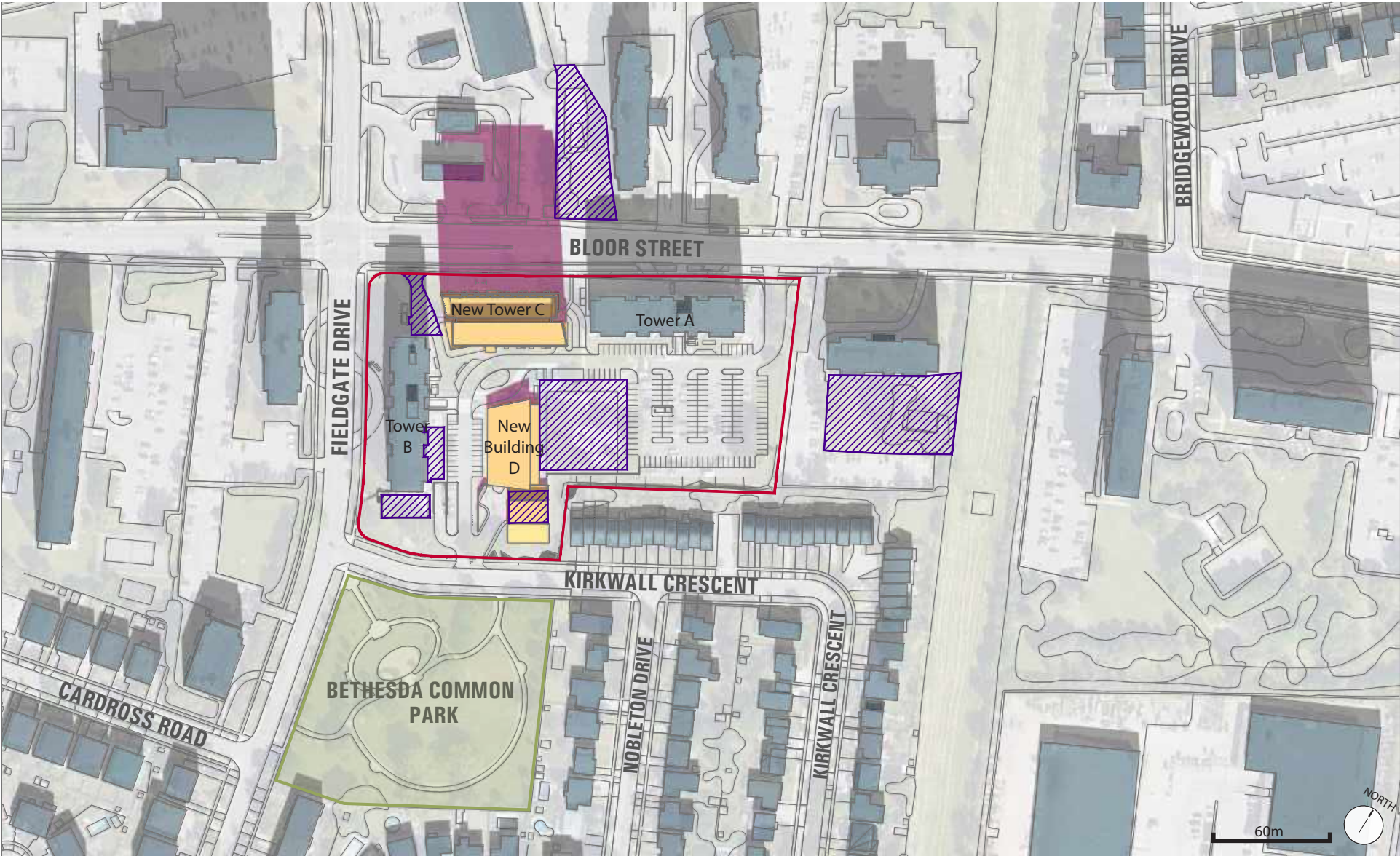


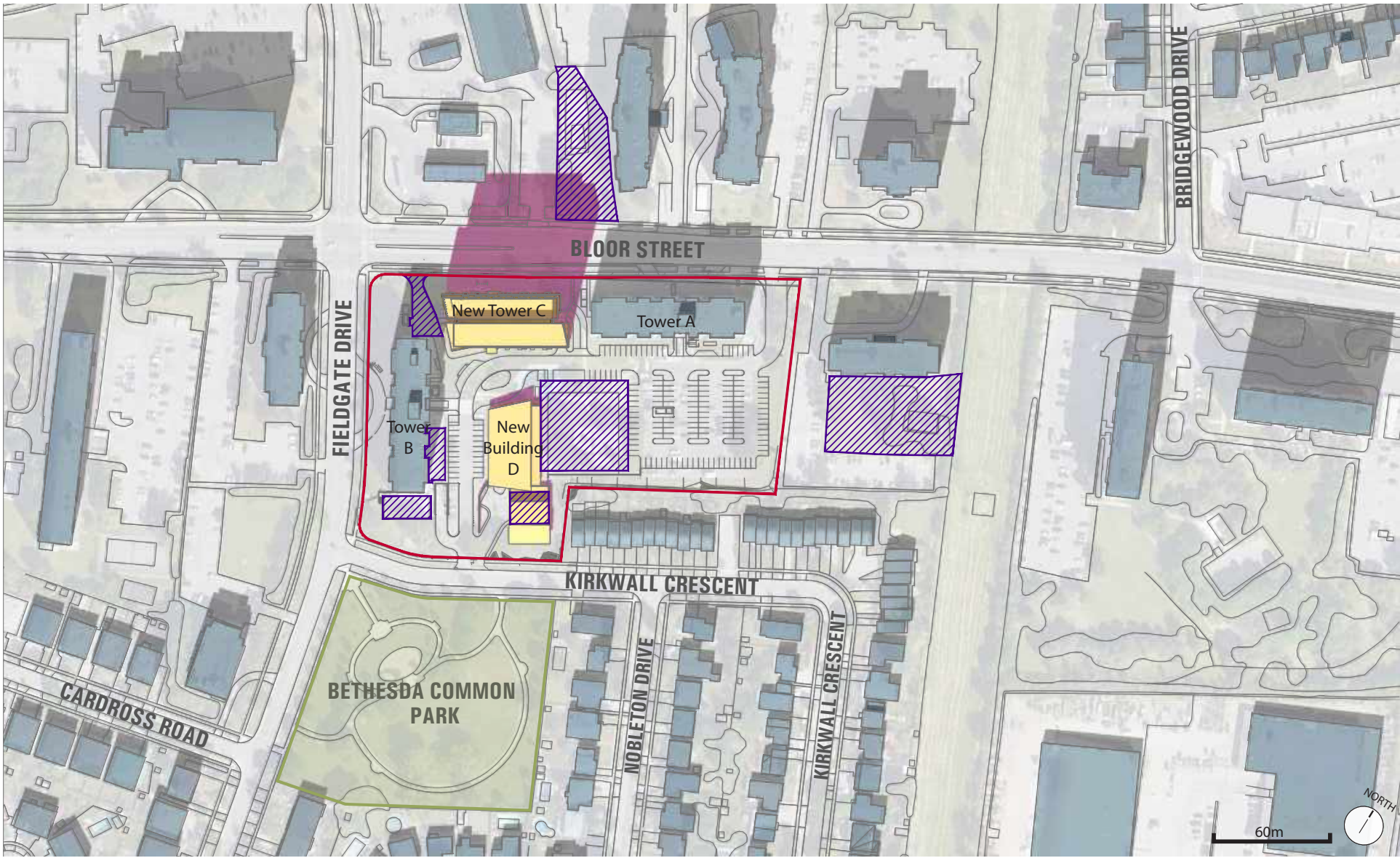
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- Existing Buildings
- Proposed
- Shadow Cast by Proposed Development
- Shadow Cast by existing buildings
- Existing Park
- Communal Outdoor Amenity Areas



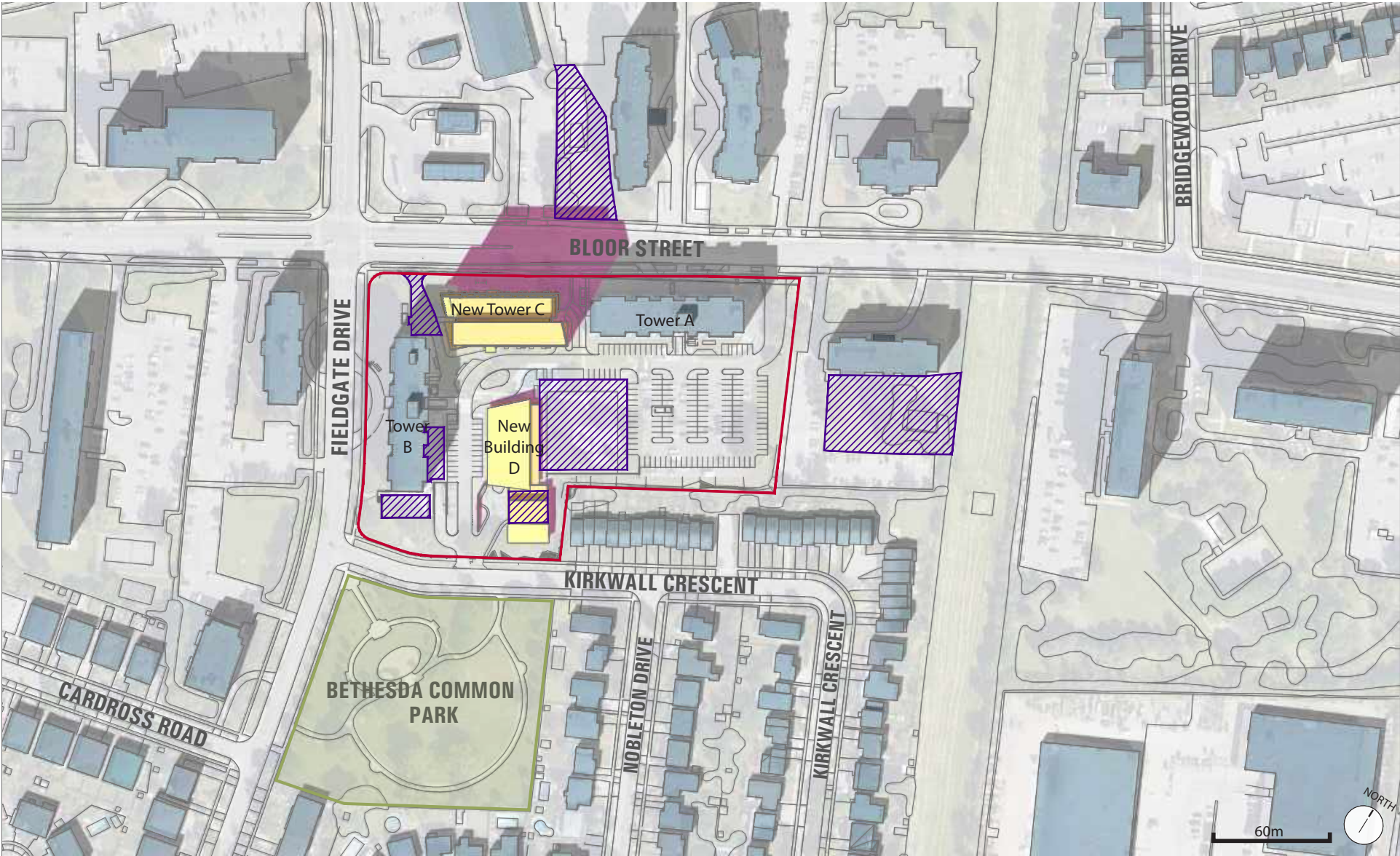
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- Existing Buildings
- Proposed
- Shadow Cast by Proposed Development
- Shadow Cast by existing buildings
- Existing Park
- Communal Outdoor Amenity Areas



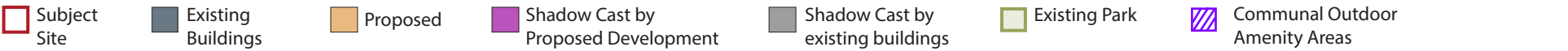
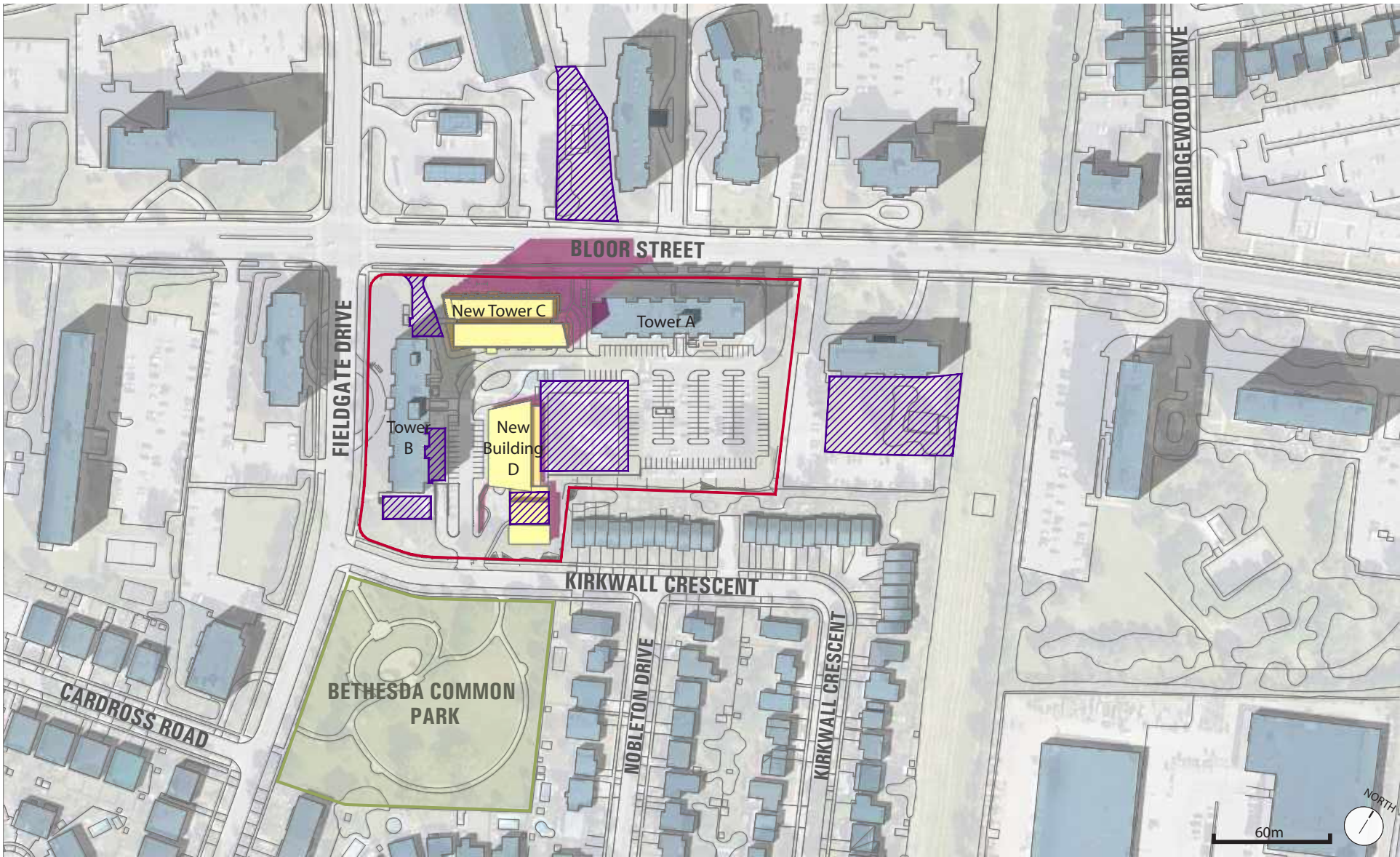
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- Existing Buildings
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- Shadow Cast by Proposed Development
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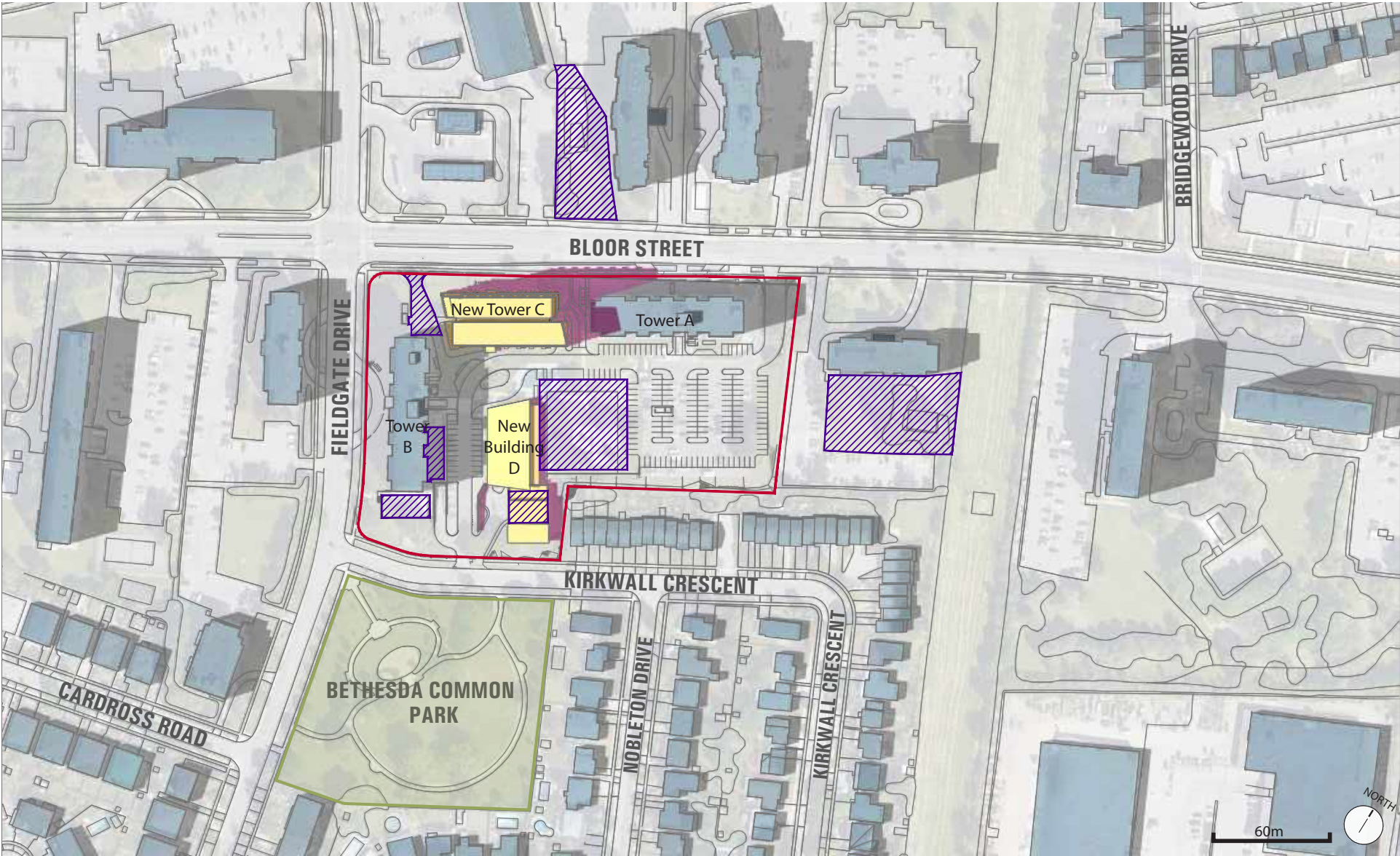


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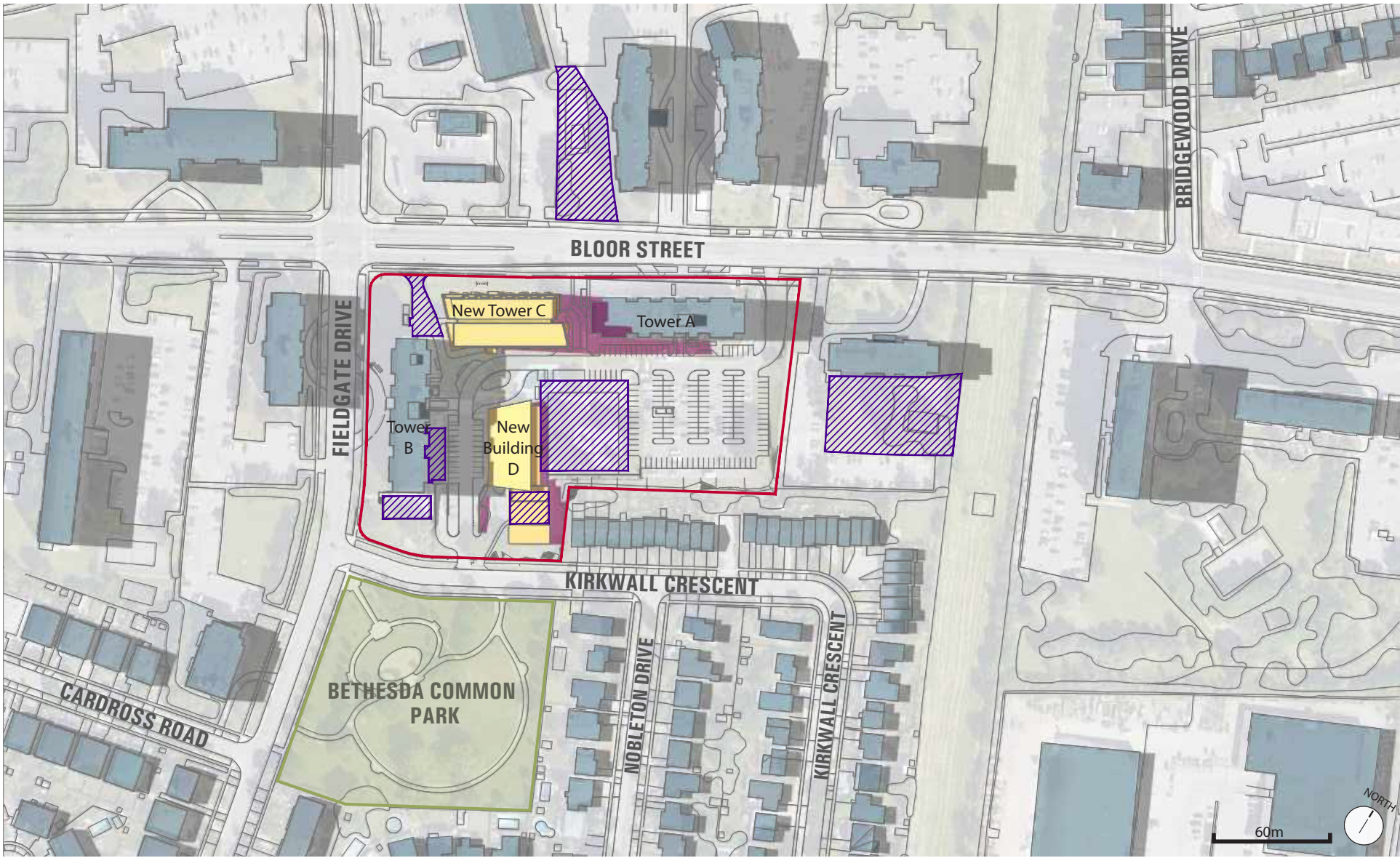


- Subject Site
- Existing Buildings
- Proposed
- Shadow Cast by Proposed Development
- Shadow Cast by existing buildings
- Existing Park
- Communal Outdoor Amenity Areas

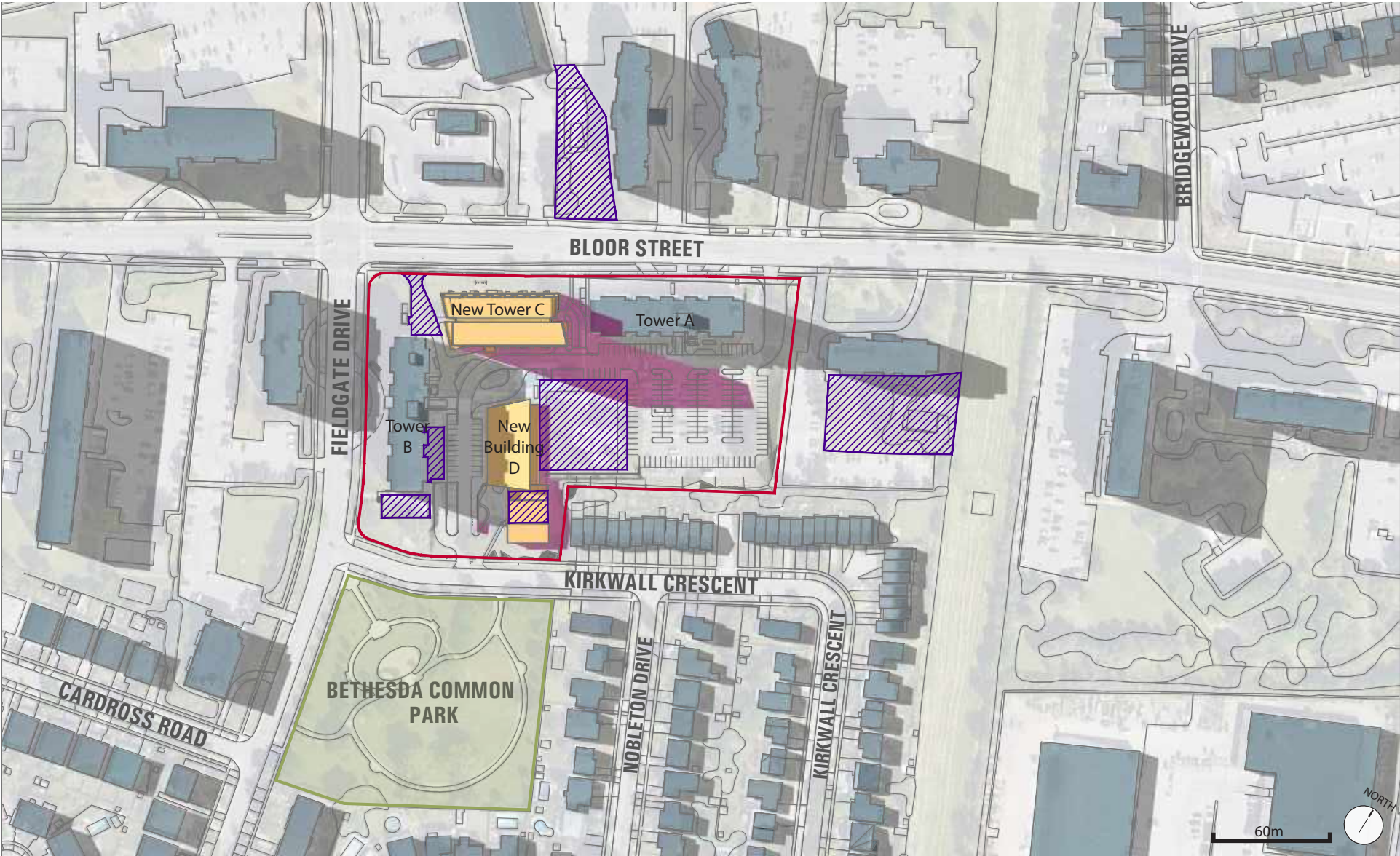




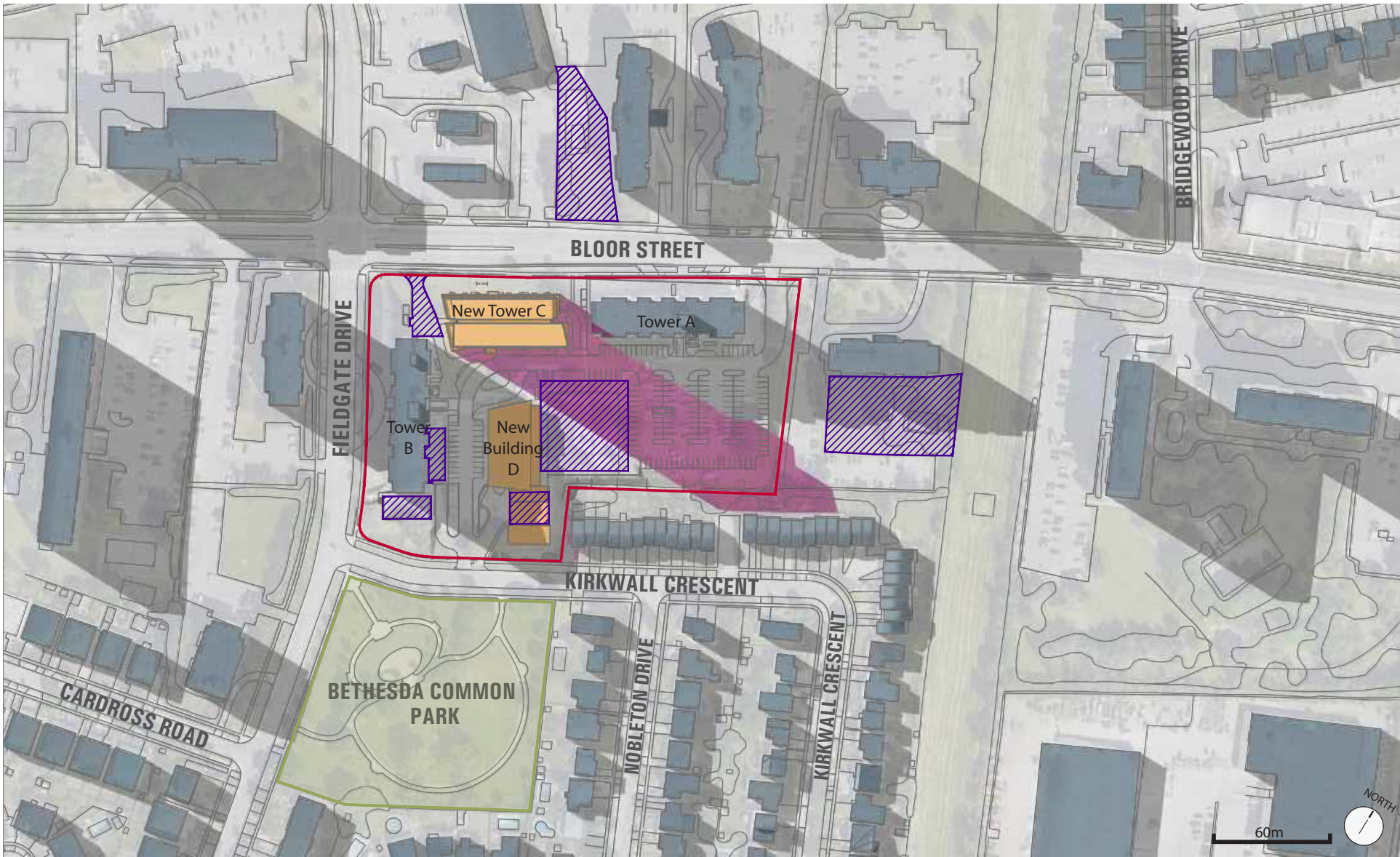
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- Proposed
- Shadow Cast by Proposed Development
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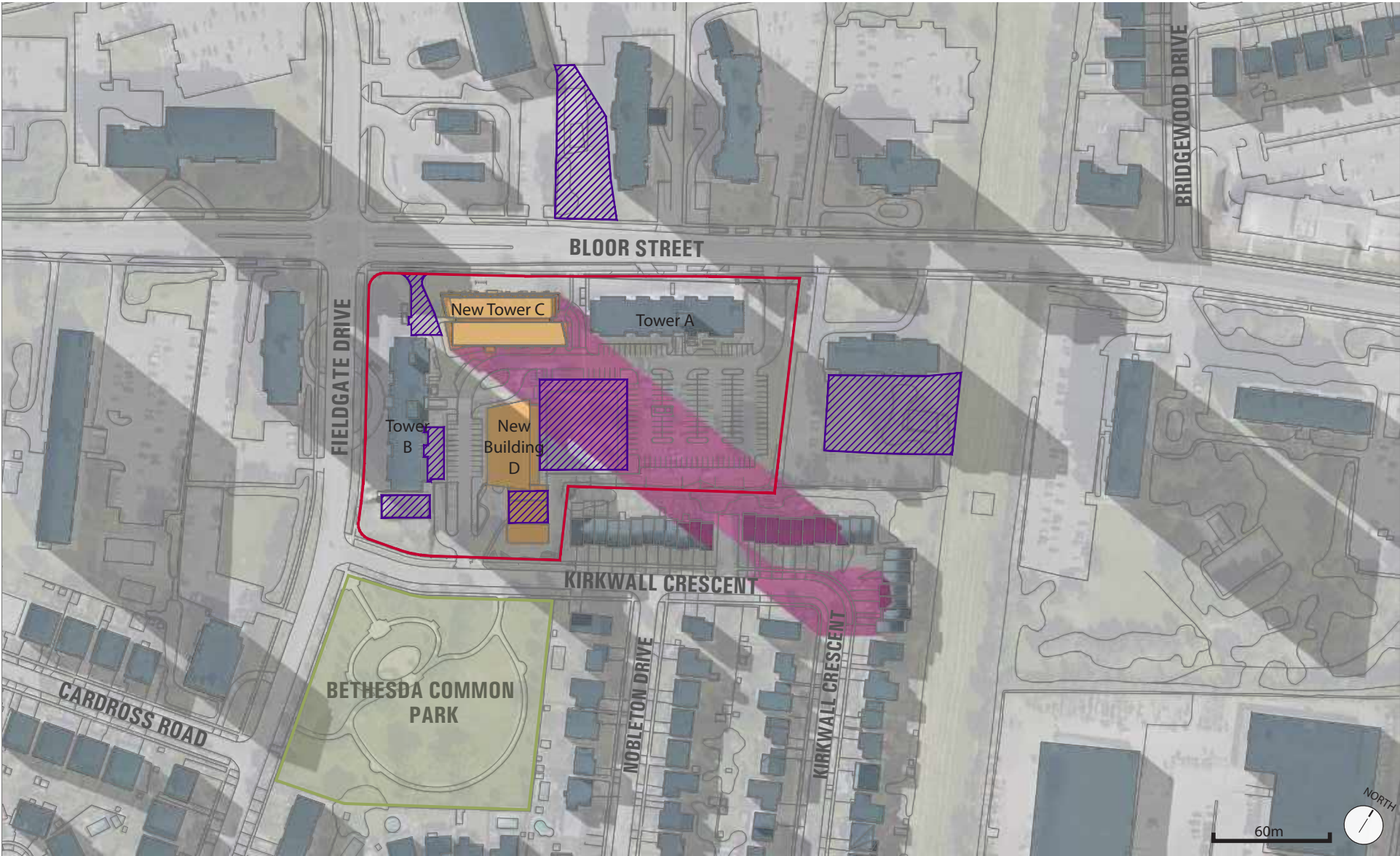
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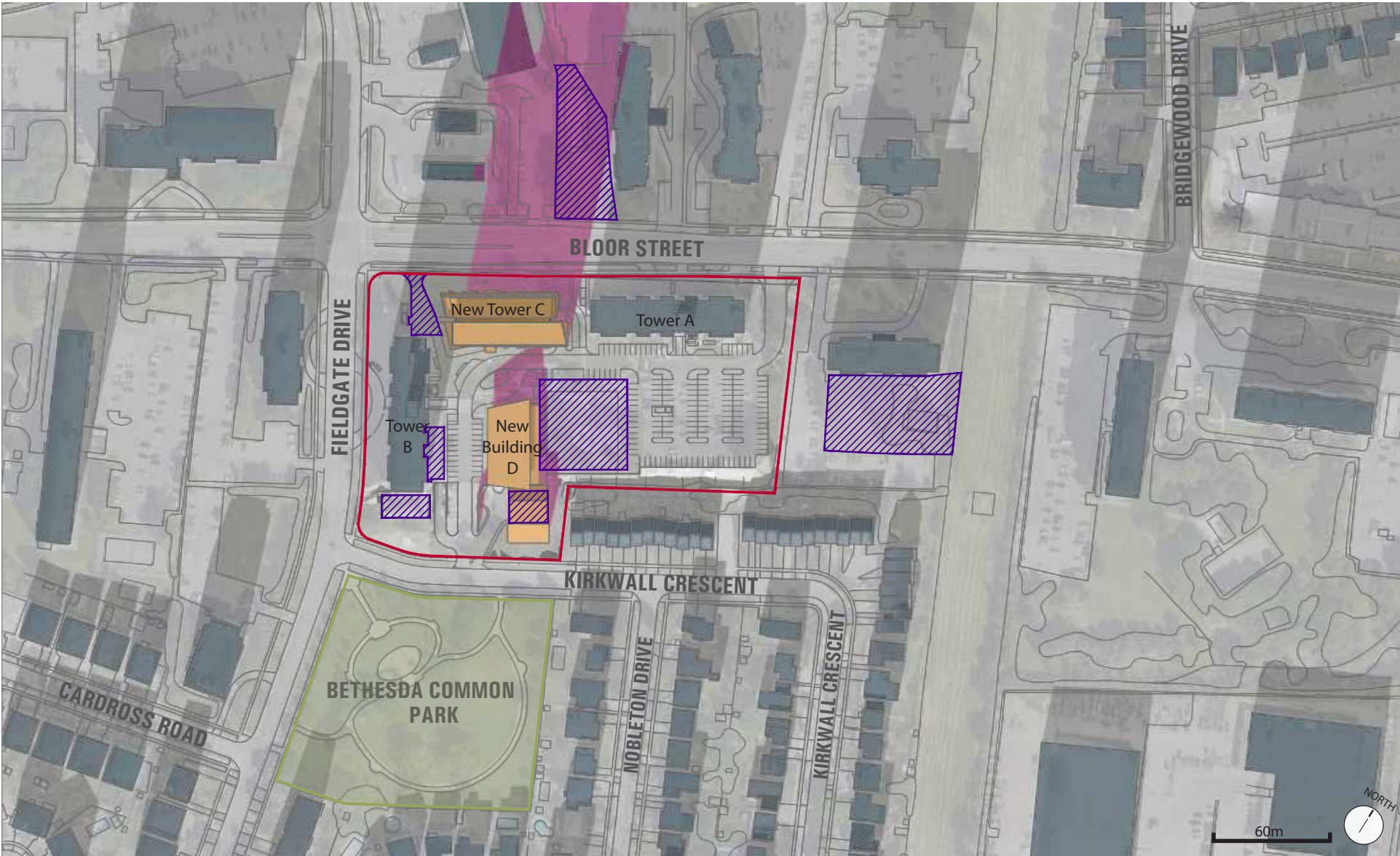
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- Existing Buildings
- Proposed
- Shadow Cast by Proposed Development
- Shadow Cast by existing buildings
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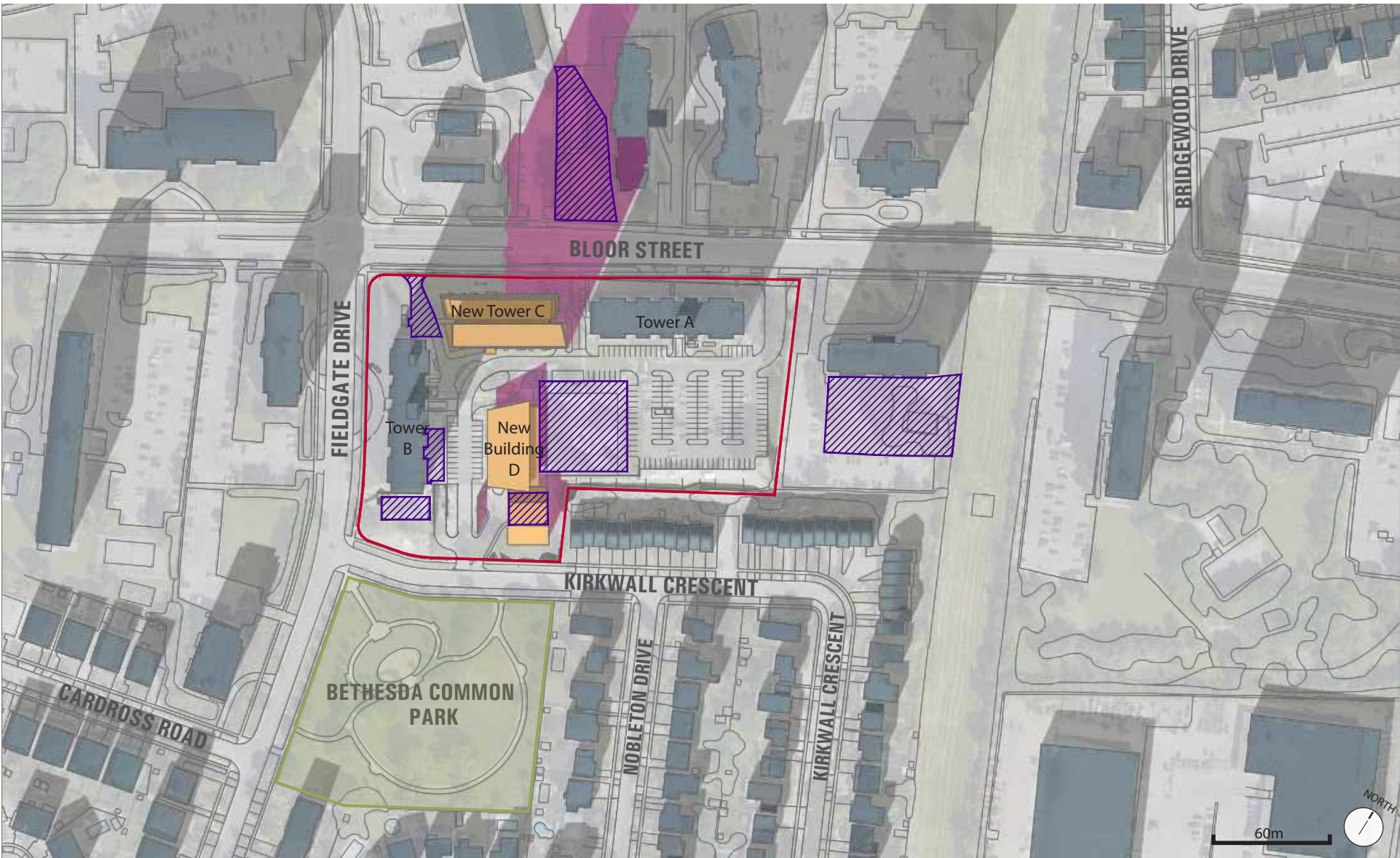
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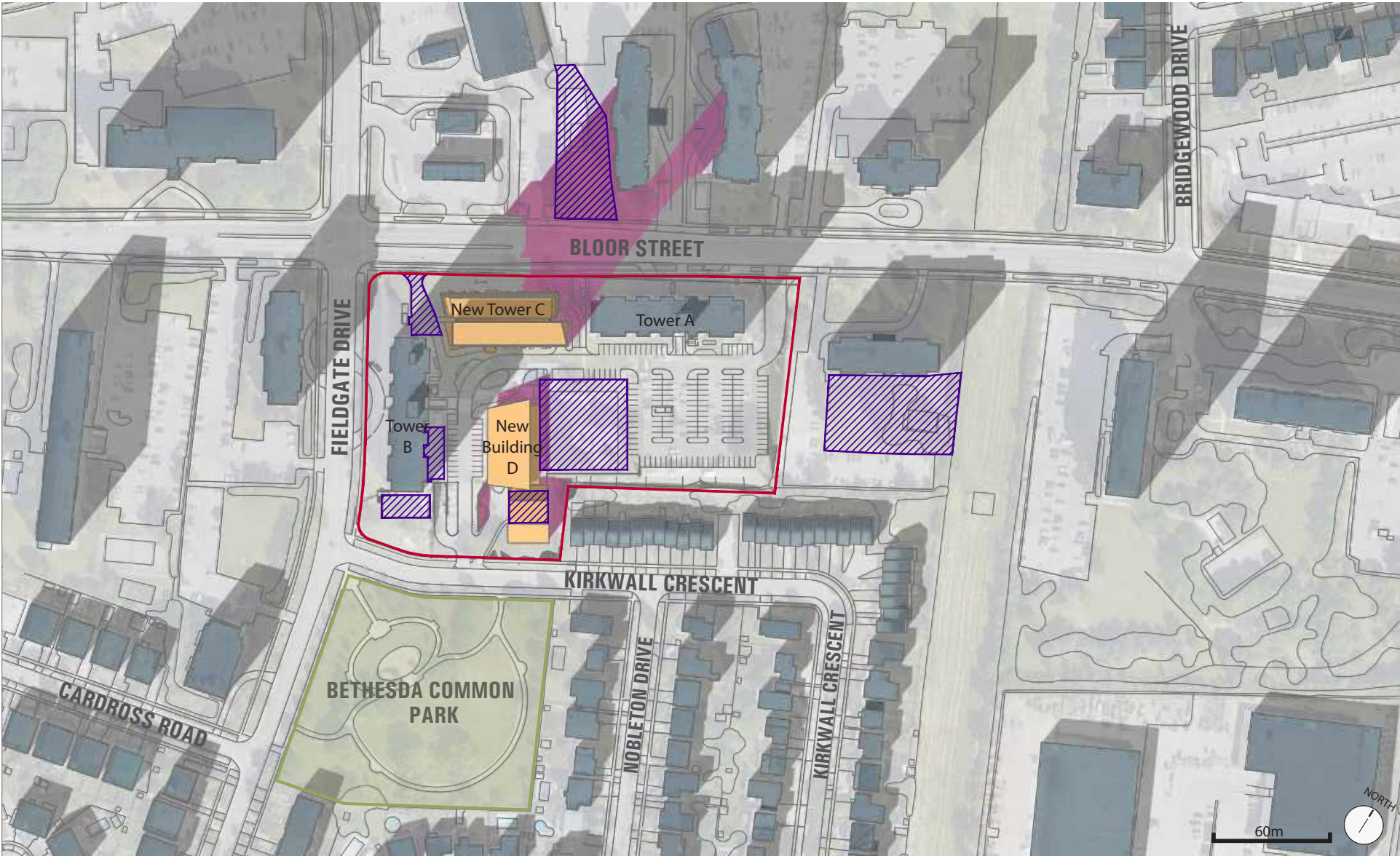
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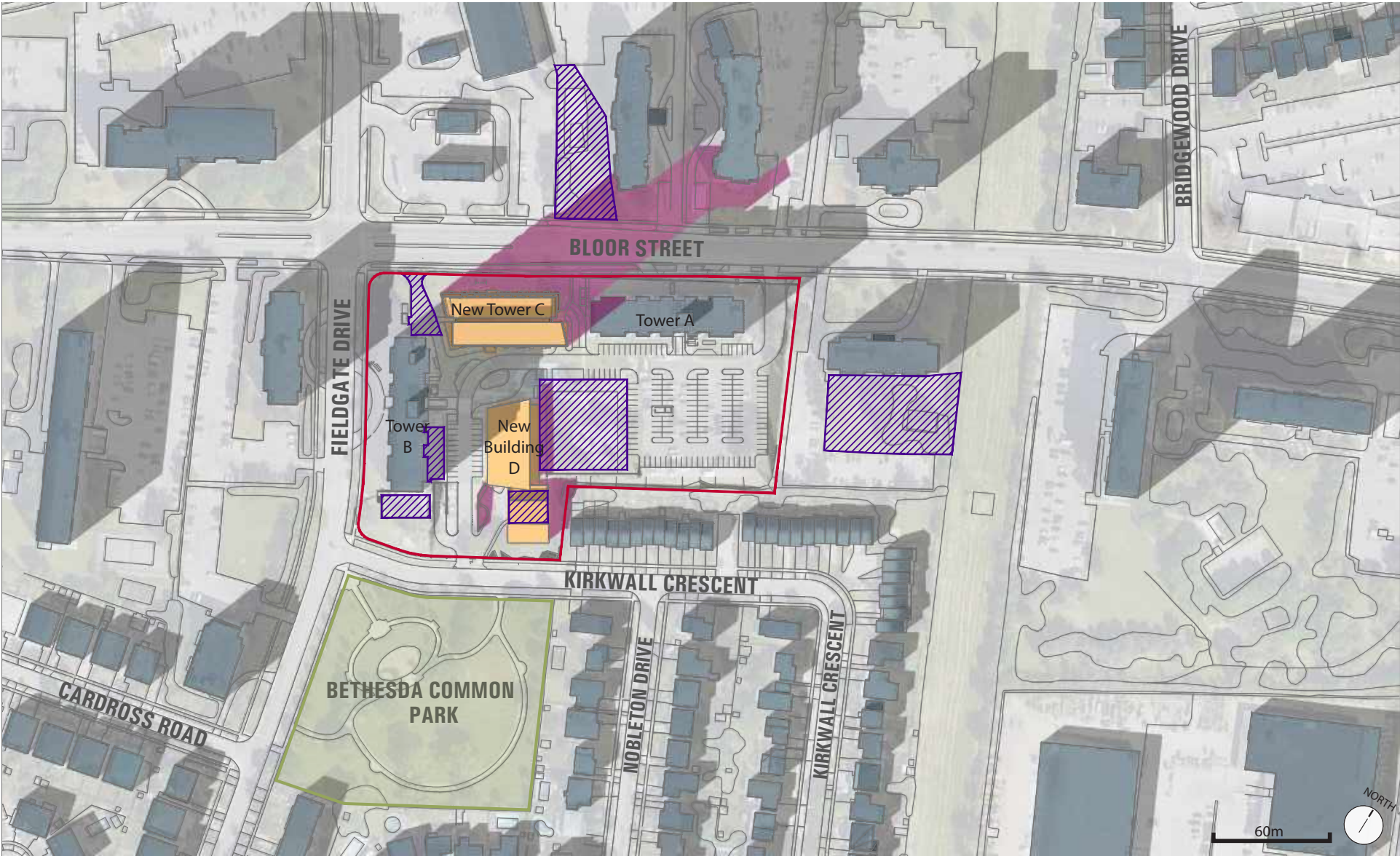
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- Shadow Cast by existing buildings
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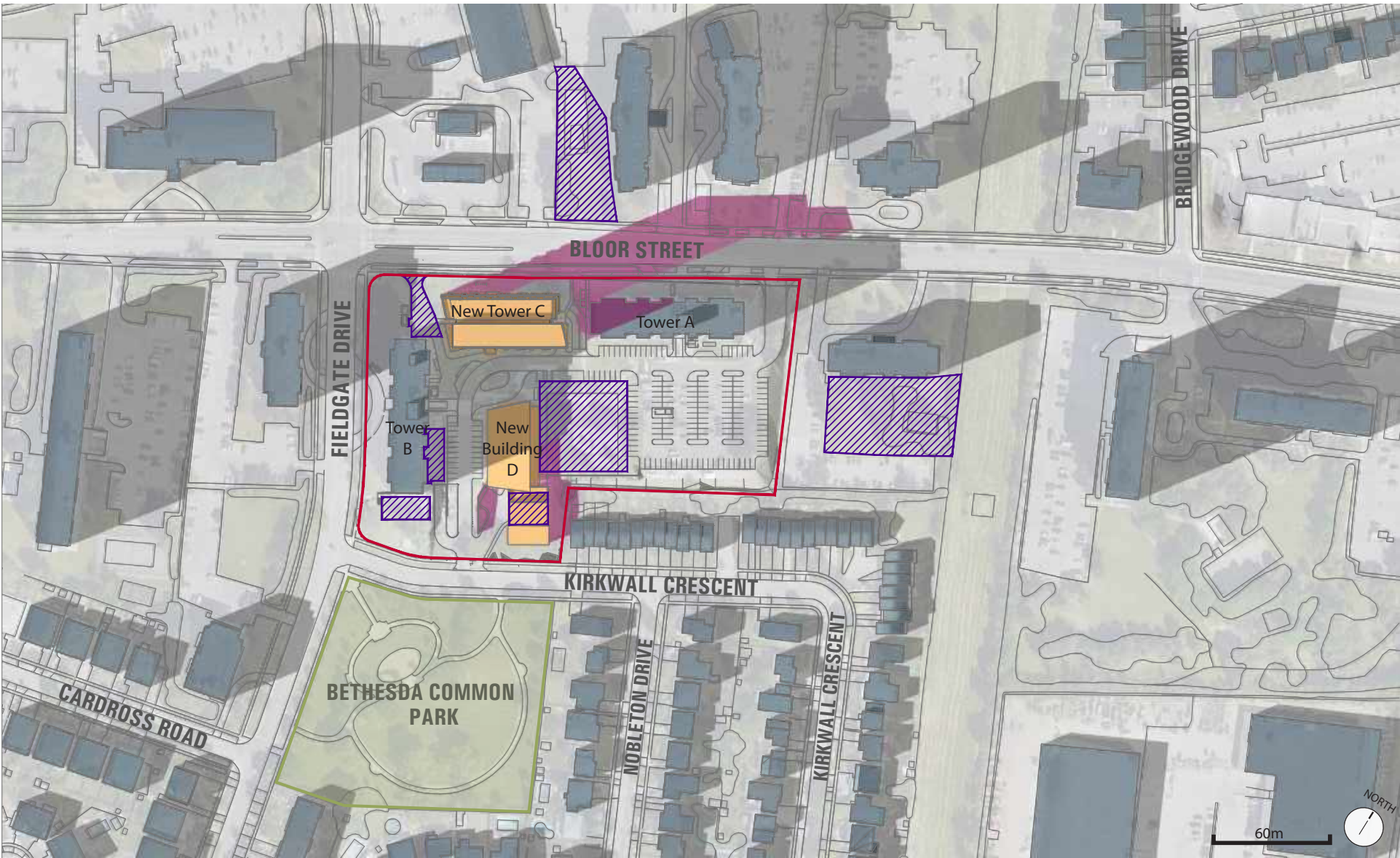
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- Existing Buildings
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- Shadow Cast by Proposed Development
- Shadow Cast by existing buildings
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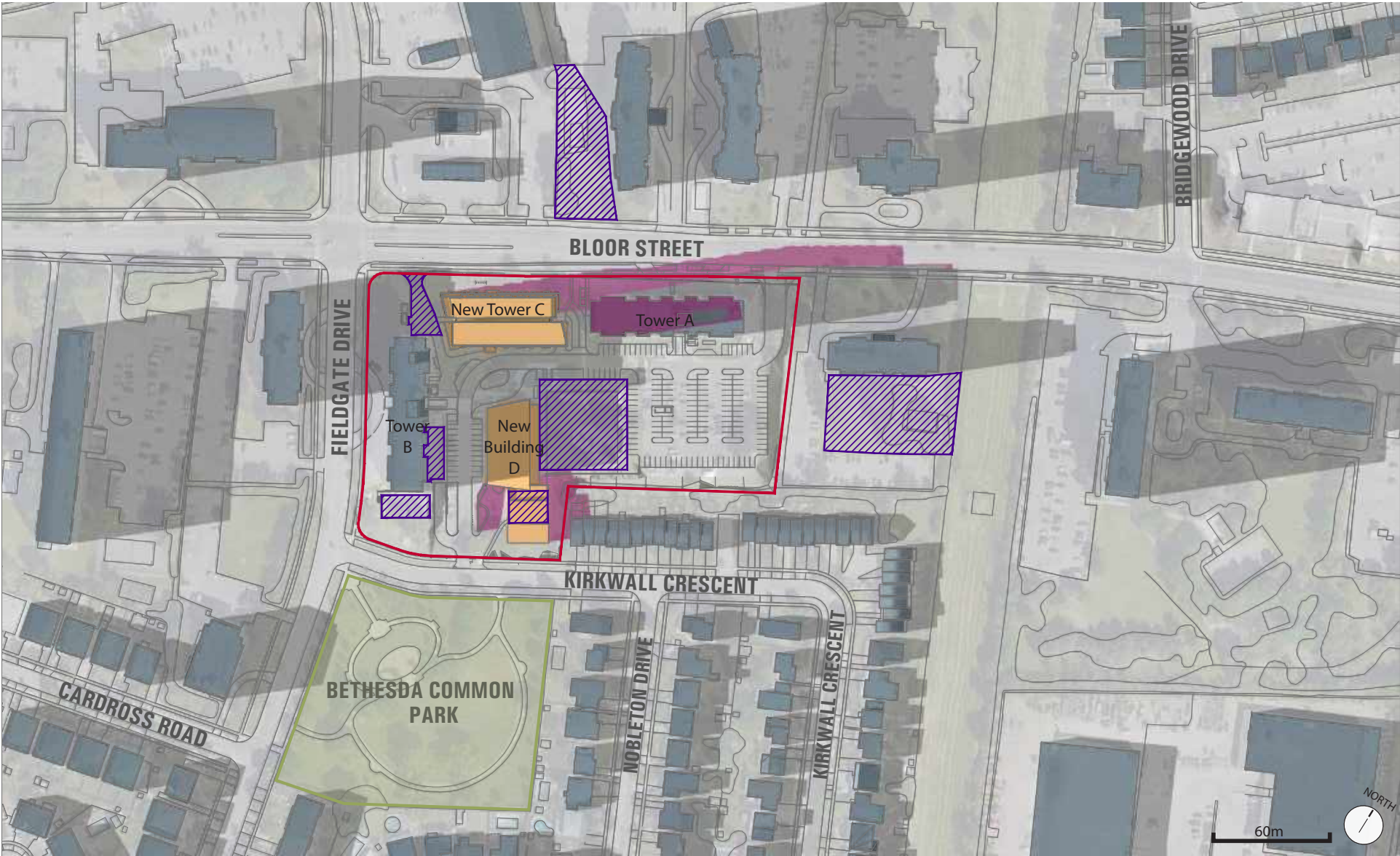
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- Existing Buildings
- Proposed
- Shadow Cast by Proposed Development
- Shadow Cast by existing buildings
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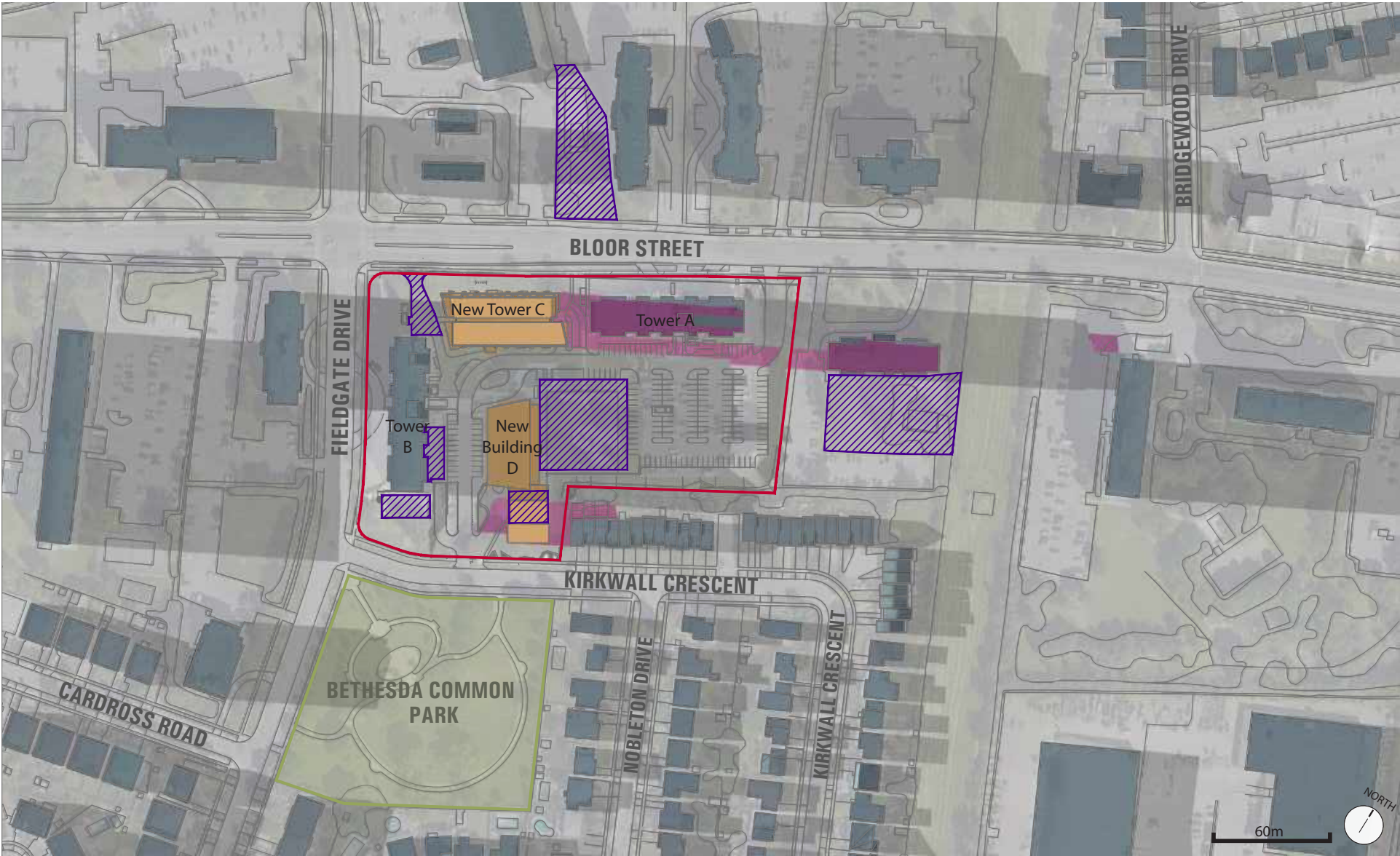
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4.0 PUBLIC REALM

Section 3.3 of the Mississauga Urban Design Terms of Reference - Standards for Shadow Studies requires the identification of Public Realm within the vicinity of the proposed development. Areas outlined in yellow were identified as Public Realm and include sidewalks, open spaces, parks and plazas.

Mixed-Use, Commercial, Employment and High Density Residential Streets

As defined by the Terms of Reference, Mixed-Use, Commercial, Employment and High Density Residential Streets should be designed to allow full sunlight on the opposite boulevard including the full width of the sidewalk on September 21st for a total of at least 5 hours that must include the 2 hour period between 12:12 pm and 2:12 pm, and an additional 2 hour period from either 9:12 am to 11:12 am or from 3:12 pm and 5:12 pm.

As per the Comments from Urban Design (dated November 28, 2018) shadows resulting from the proposed development on the north side of the sidewalk are acceptable.

Public Open Spaces, Parks and Plazas

As defined by the Terms of Reference, shadows from proposed developments should allow for full sun on public open spaces, parks (Bethesda Common Park) and plazas at least half the time, or 50% sun coverage all the time. If the "sun access factor" is at least 50% or 0.5 on each of the test dates ($As(ave)/AT = 0.5$ or more), then the shadow impact is considered to be in compliance with these terms of reference. The findings of the shadow study conclude that the proposed development sun access factor is 0.99; therefore, complies with this standard. Please refer to Section 8. Calculations for details page 108).

Figure 3 - Public Realm key map identifies all areas in the vicinity.

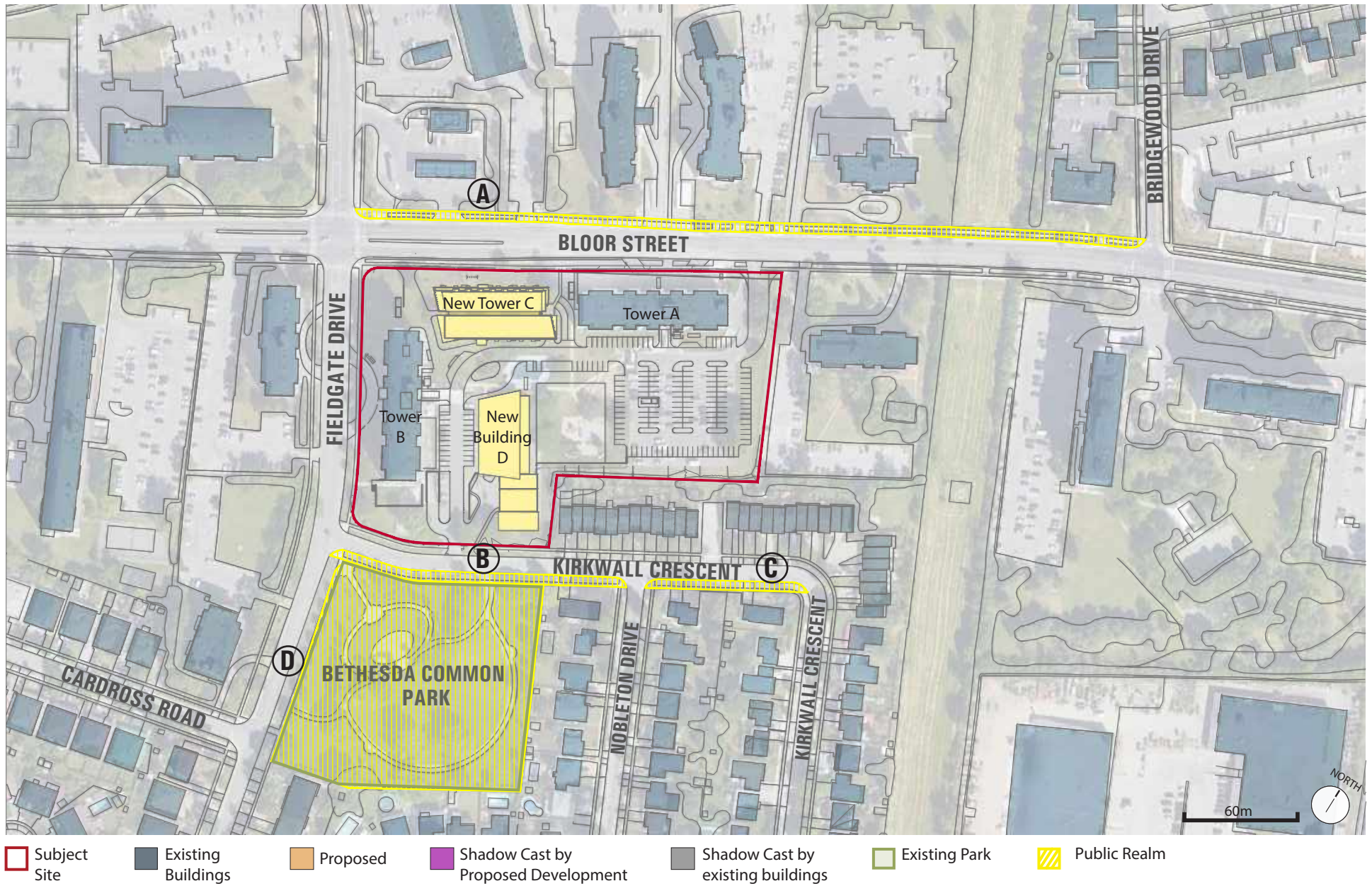
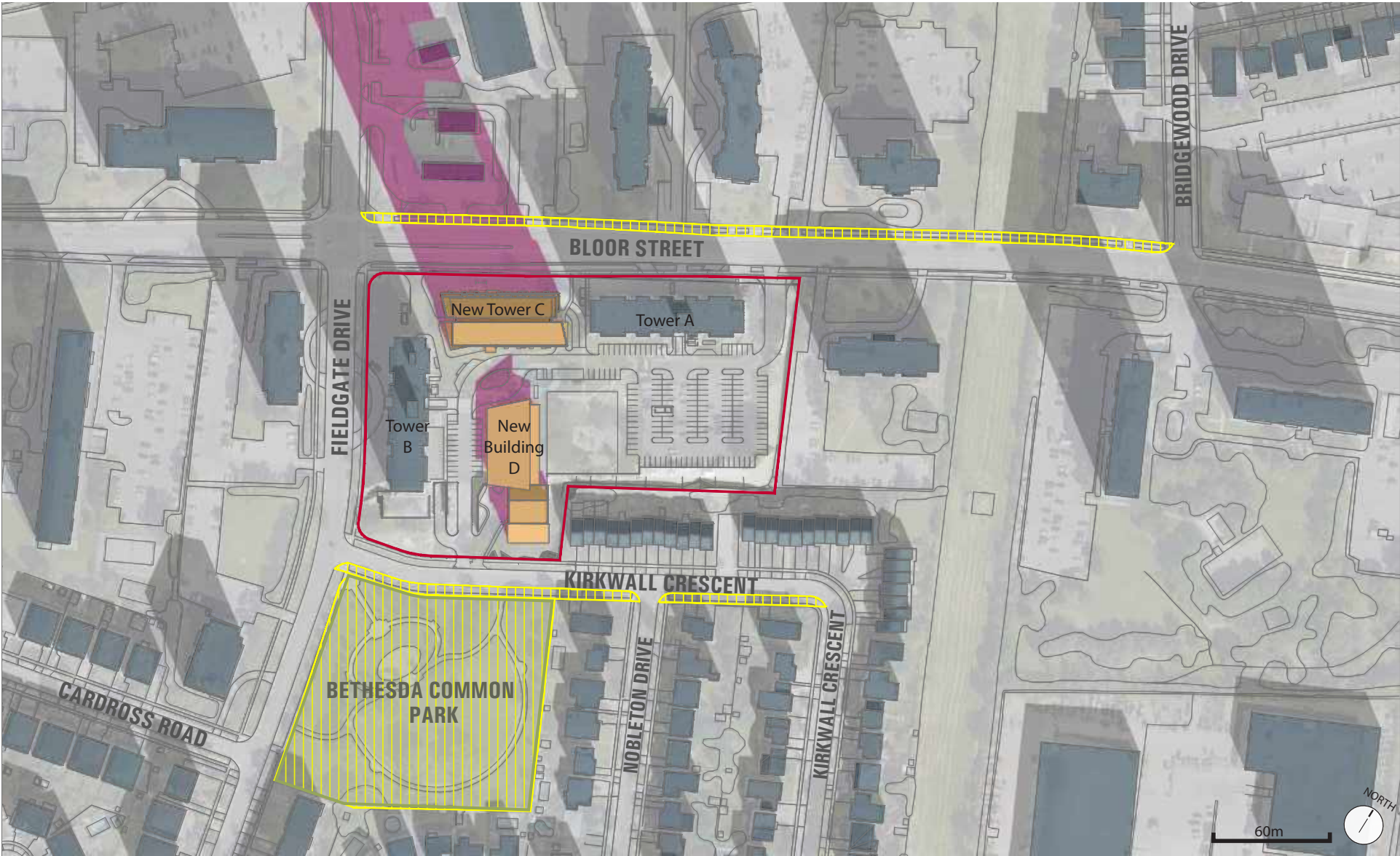
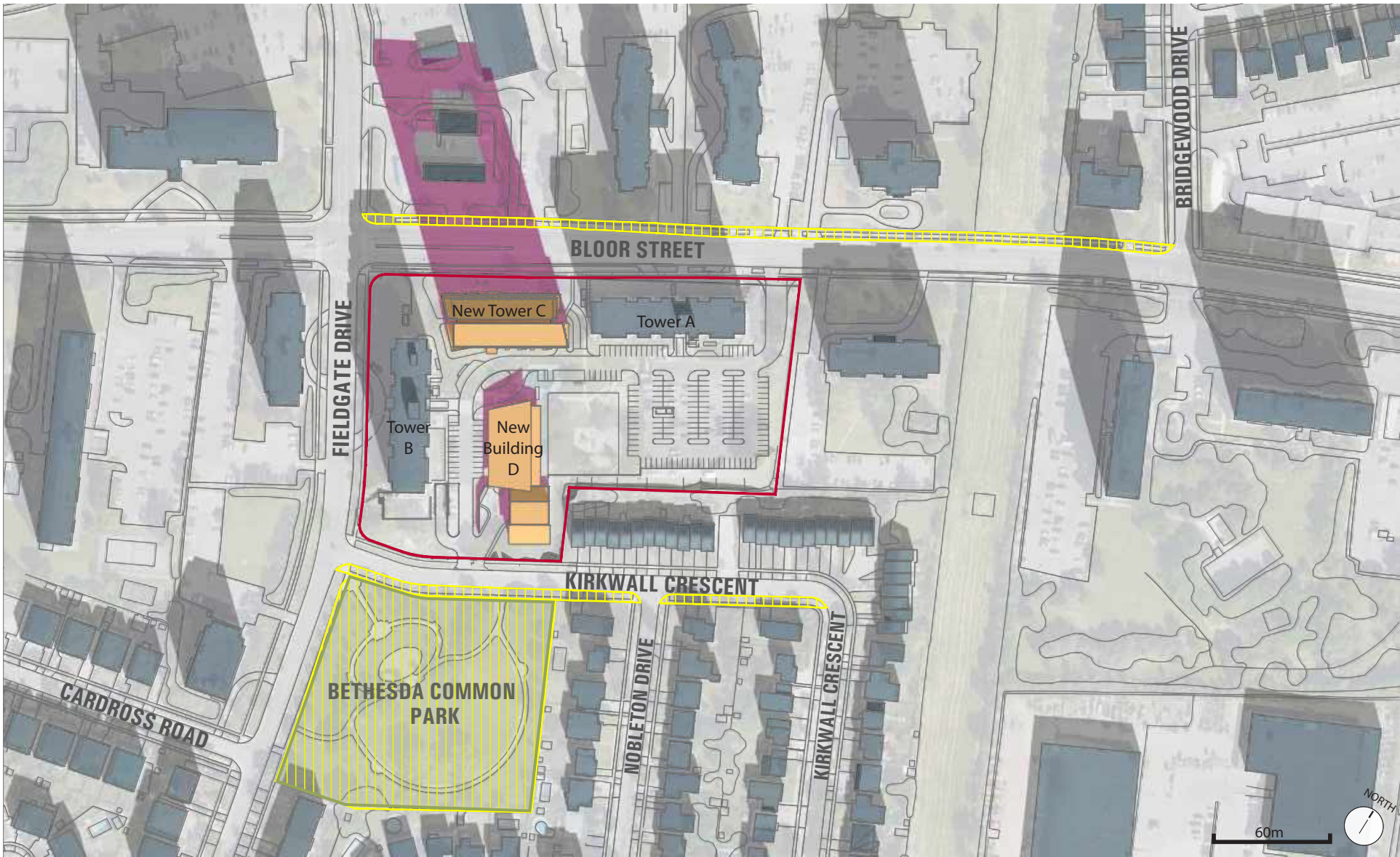


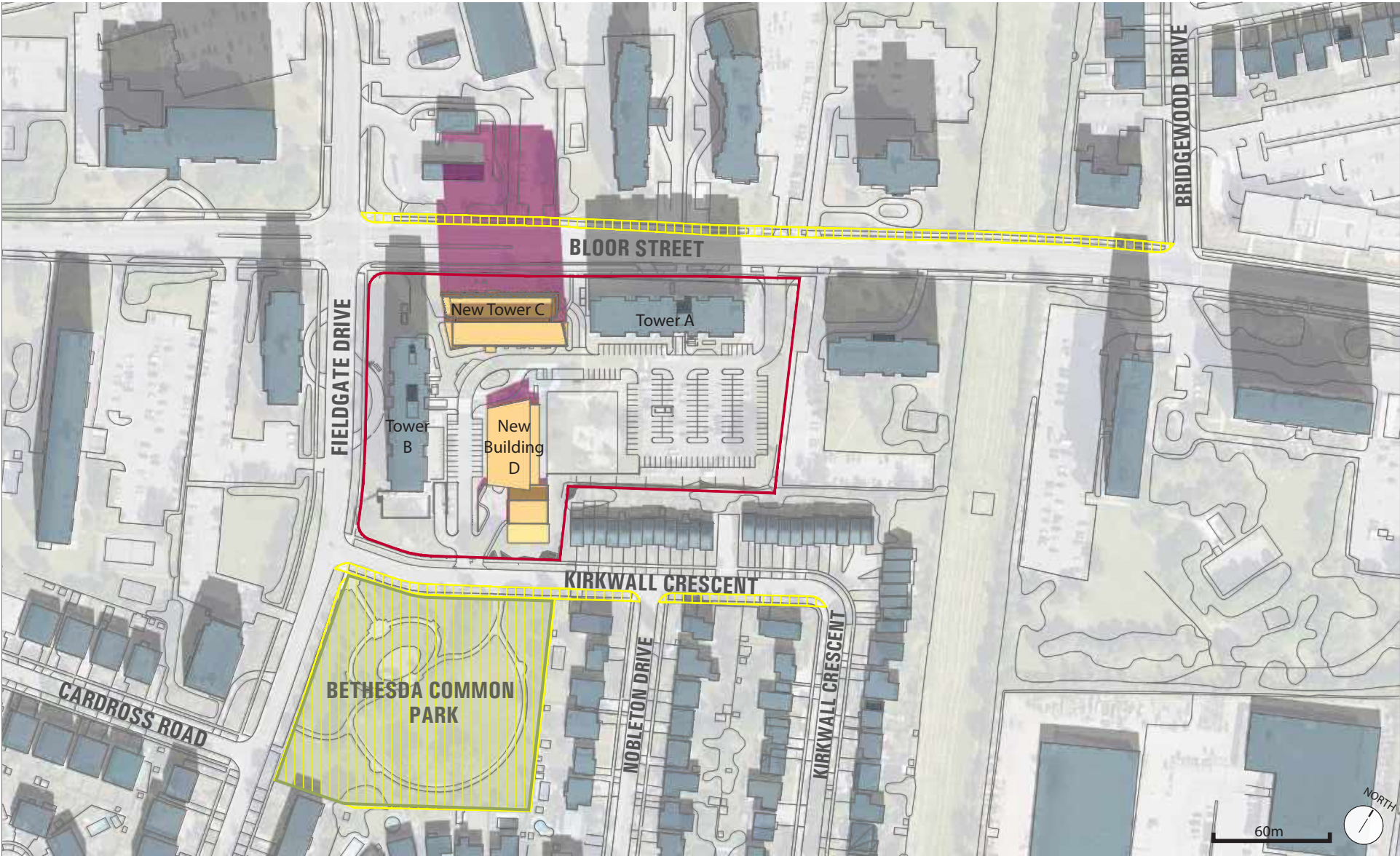
Figure 3 - Public realm areas key map



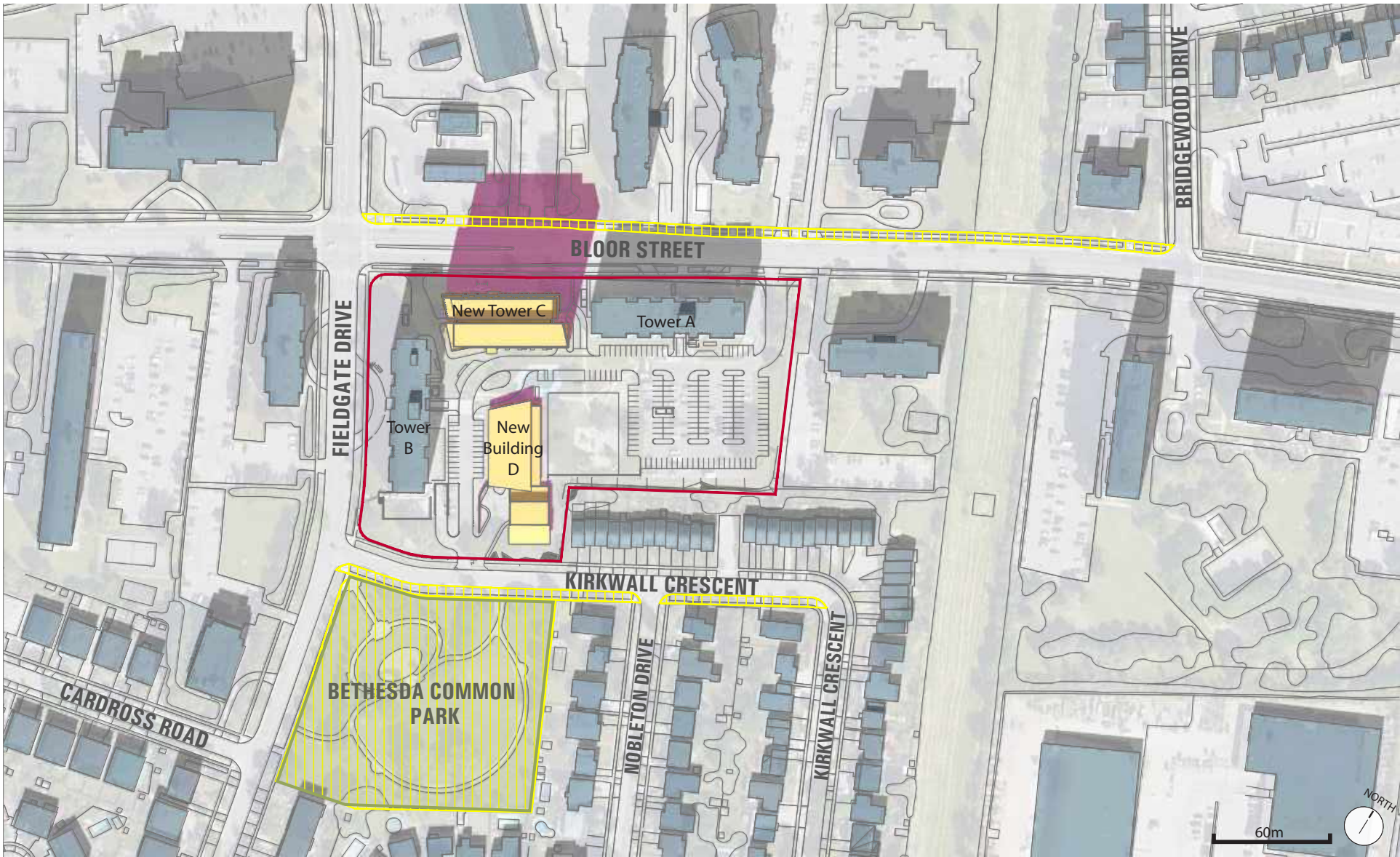
- Subject Site
- Existing Buildings
- Proposed
- Shadow Cast by Proposed Development
- Shadow Cast by existing buildings
- Existing Park
- Public Realm



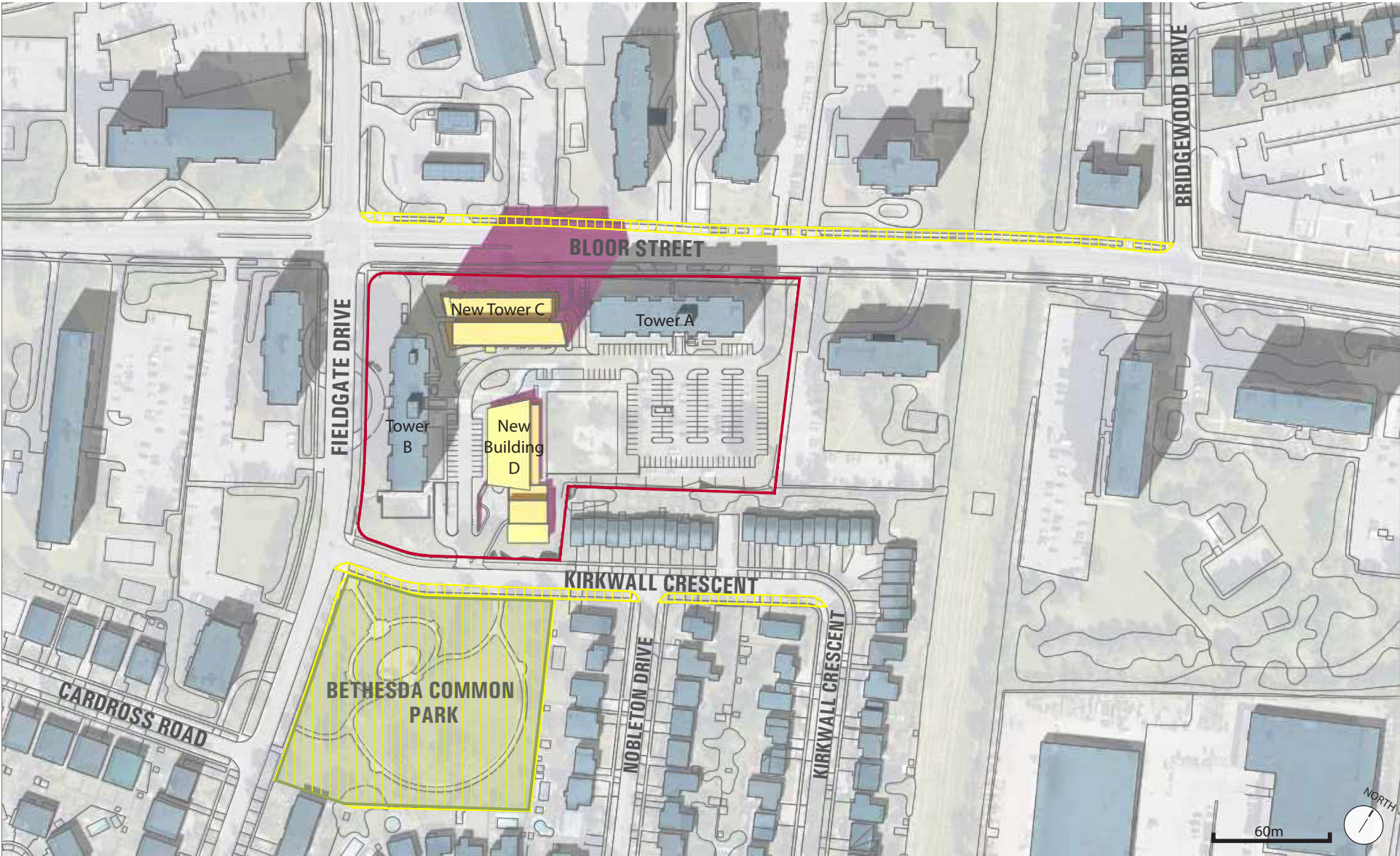
- Subject Site
- Existing Buildings
- Proposed
- Shadow Cast by Proposed Development
- Shadow Cast by existing buildings
- Existing Park
- Public Realm



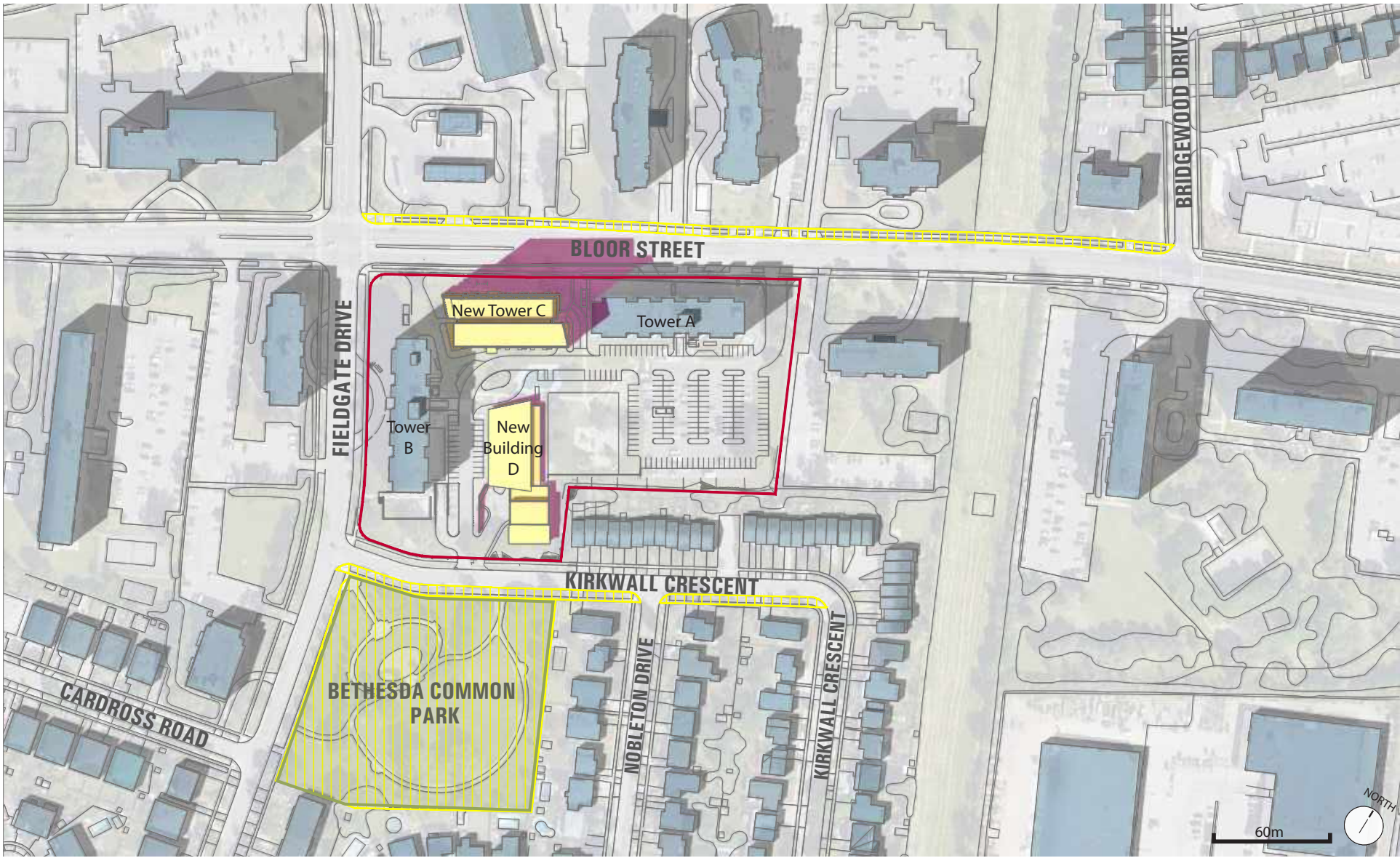
- Subject Site
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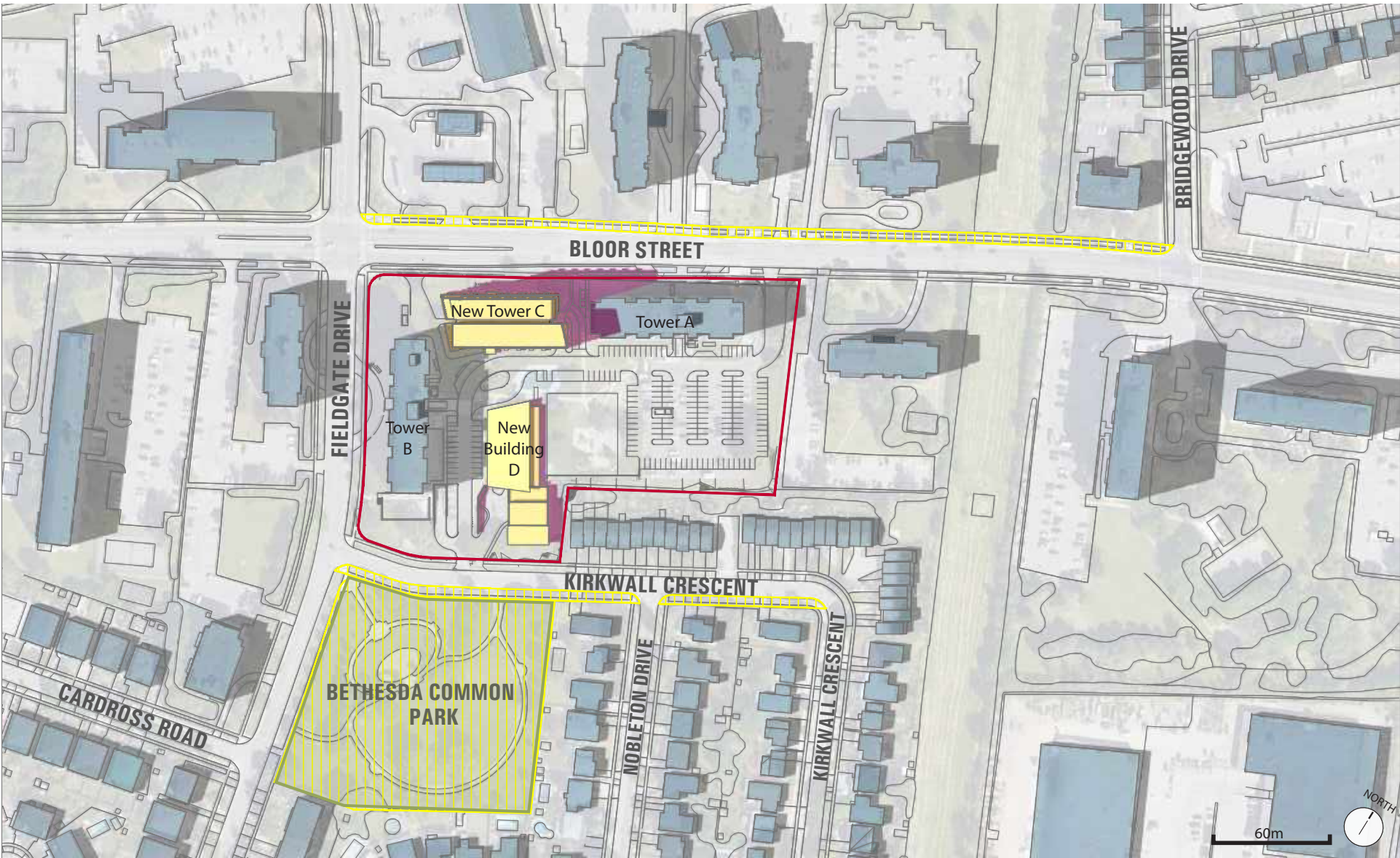
- Subject Site
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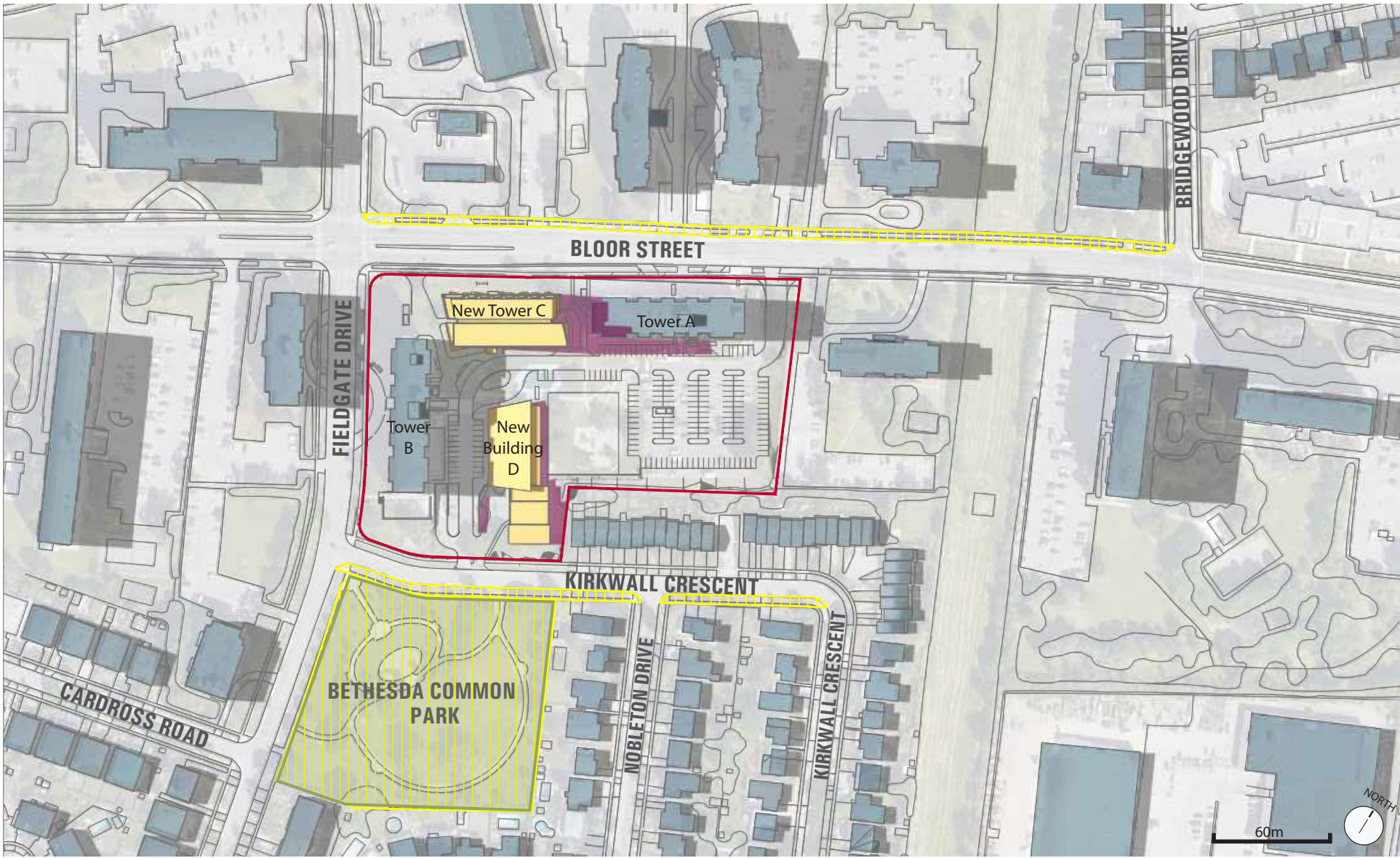
- Subject Site
- Existing Buildings
- Proposed
- Shadow Cast by Proposed Development
- Shadow Cast by existing buildings
- Existing Park
- Public Realm



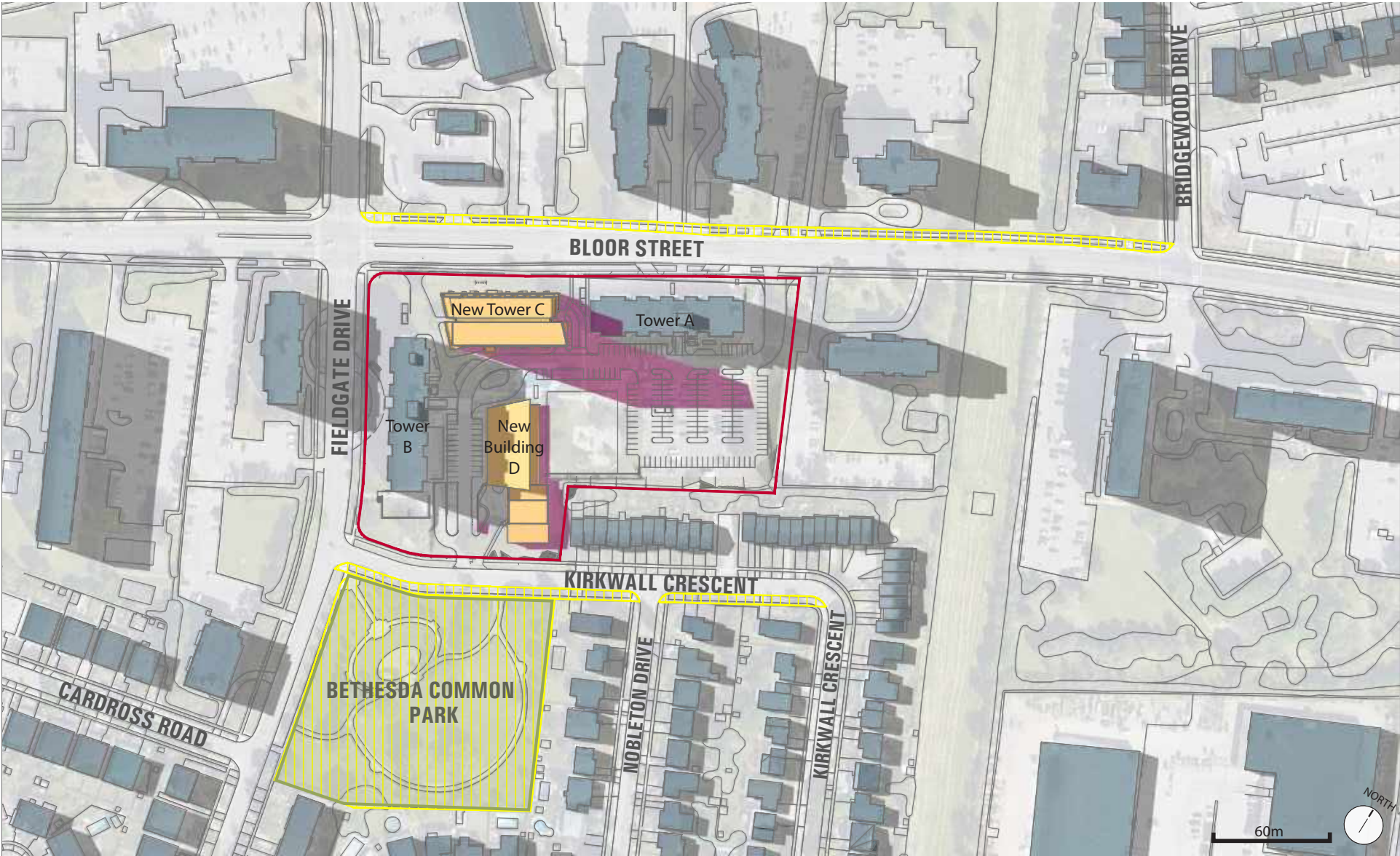
- Subject Site
- Existing Buildings
- Proposed
- Shadow Cast by Proposed Development
- Shadow Cast by existing buildings
- Existing Park
- Public Realm



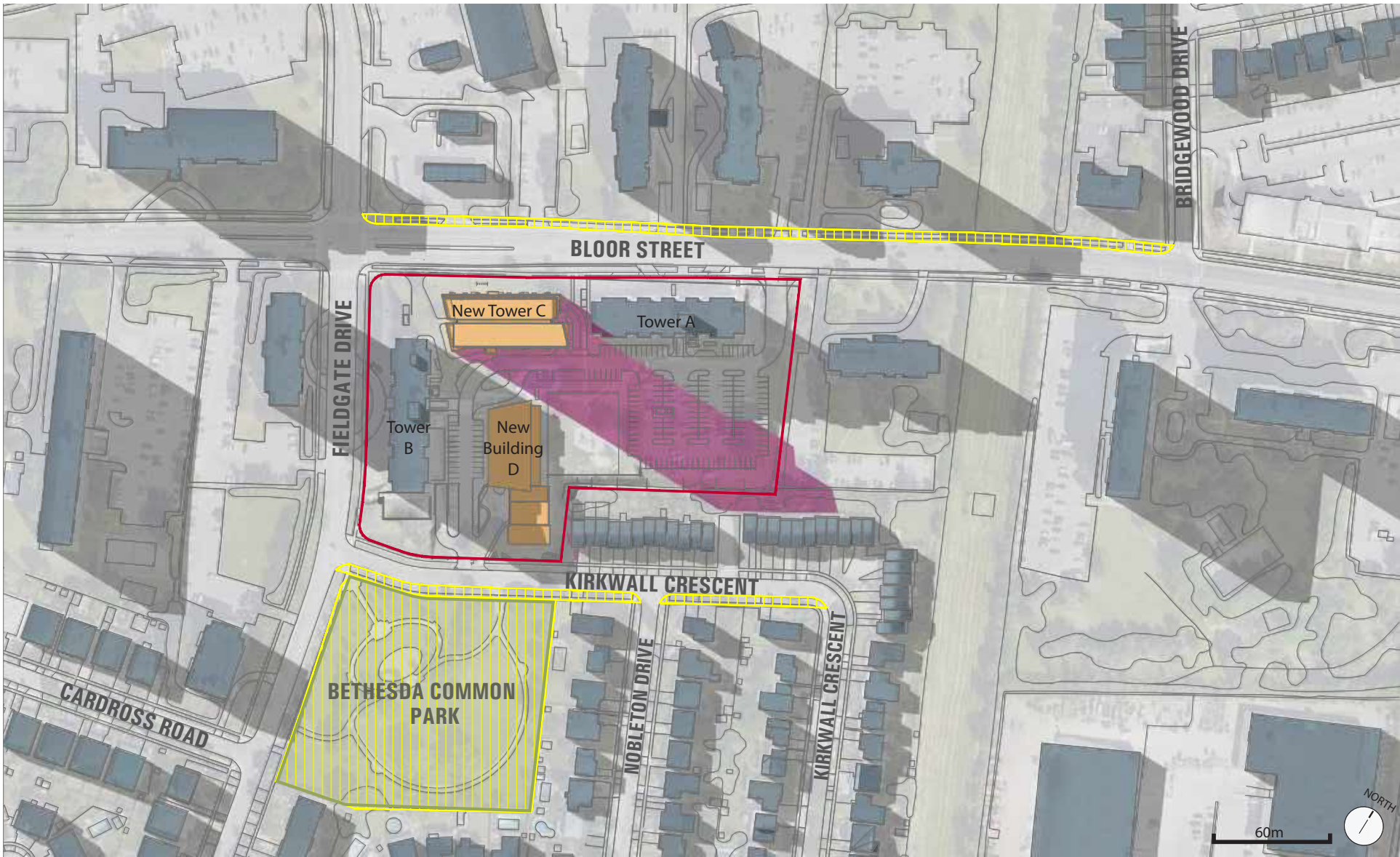
- Subject Site
- Existing Buildings
- Proposed
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- Shadow Cast by existing buildings
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- Public Realm



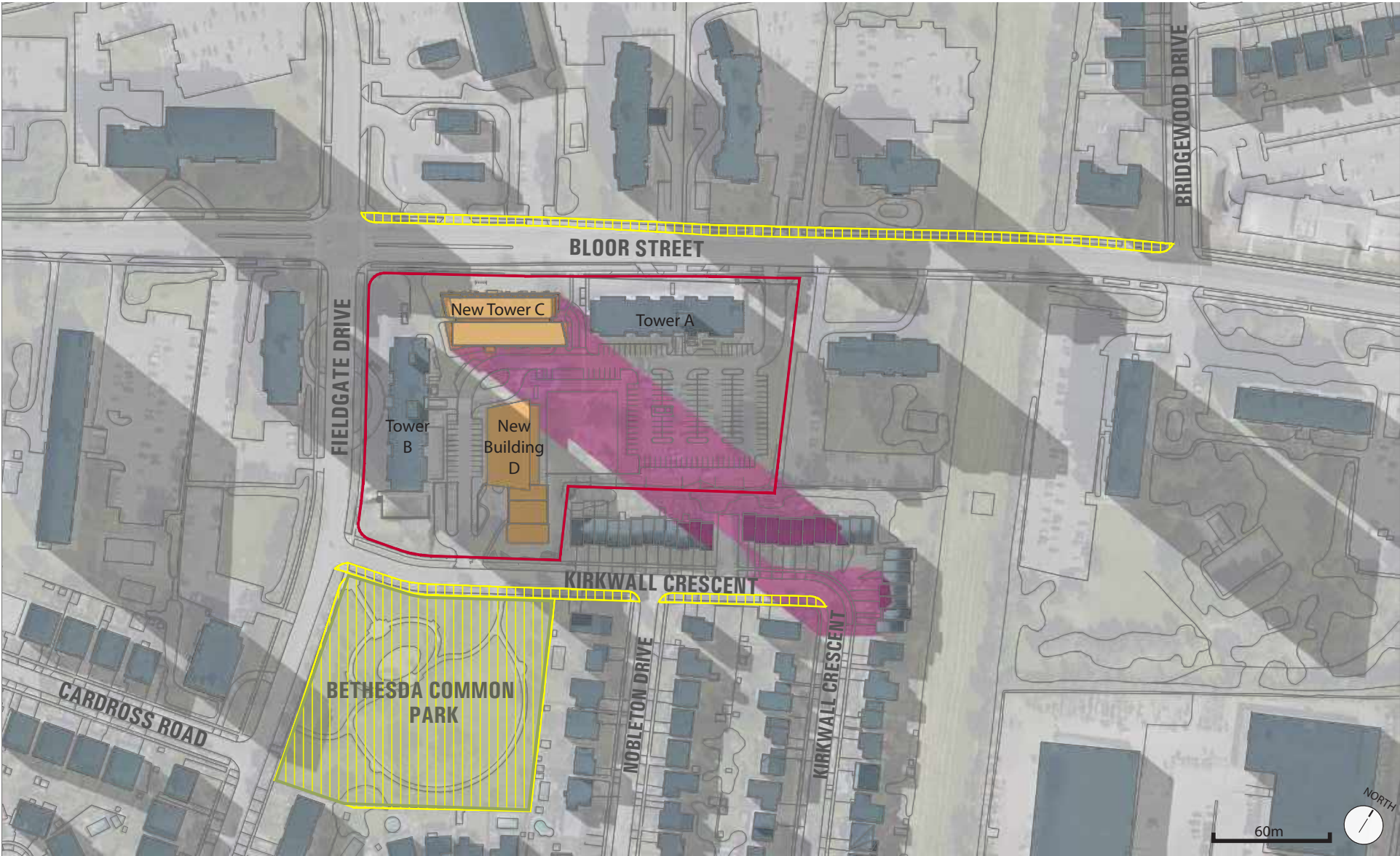
- Subject Site
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5.0 TURF AND FLOWER GARDENS IN PUBLIC PARKS

Section 3.4 of the Mississauga Urban Design Terms of Reference - Standards for Shadow Studies states that proposed developments should allow for adequate sunlight during the growing season from March to October by allowing for a minimum of 6 hours of direct sunlight on September 21.

The findings of the shadow study conclude that there is no impact on the identified area.

Figure 4 - Turf and gardens in public park area key map identifies all areas in the vicinity.

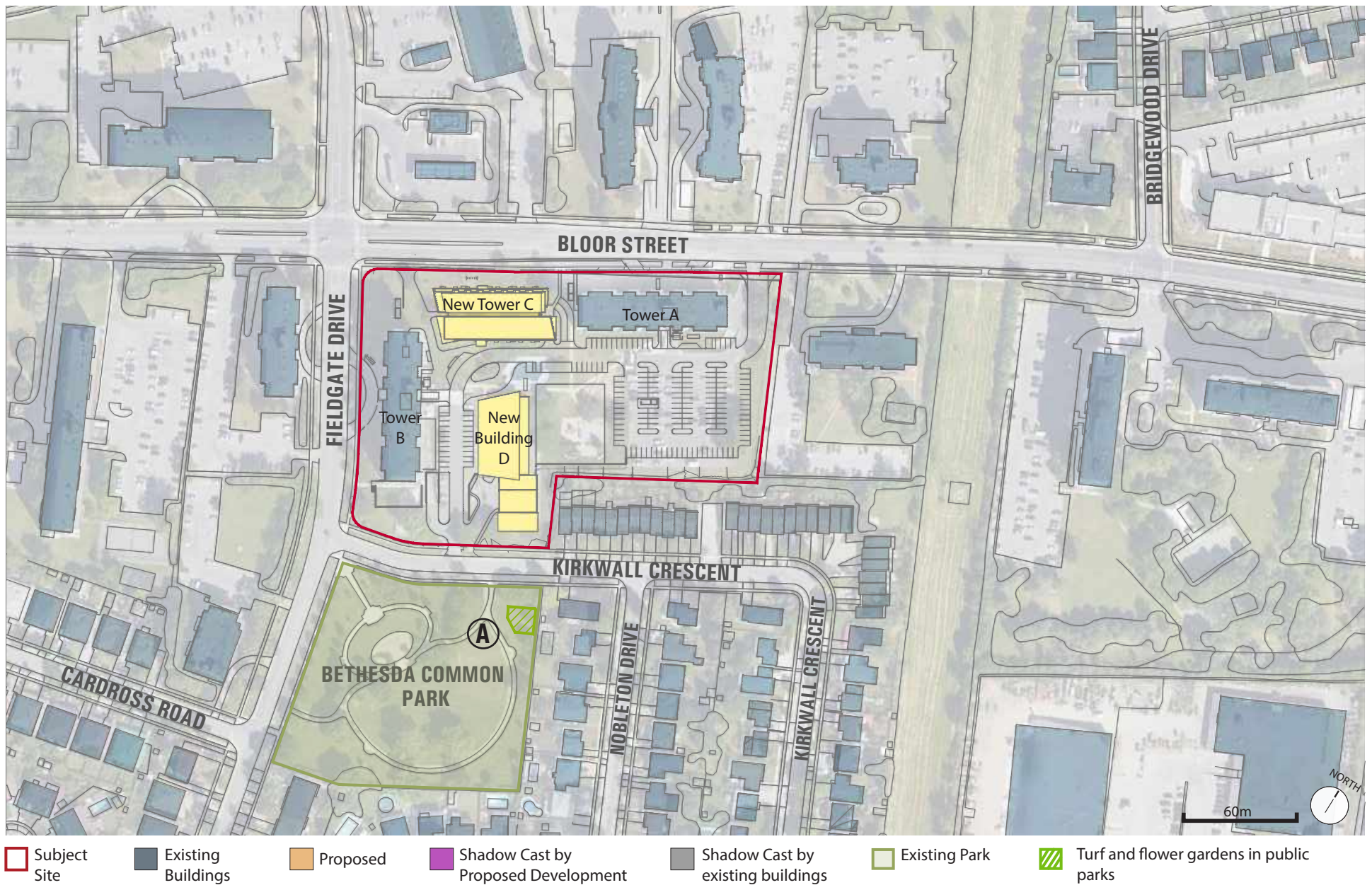
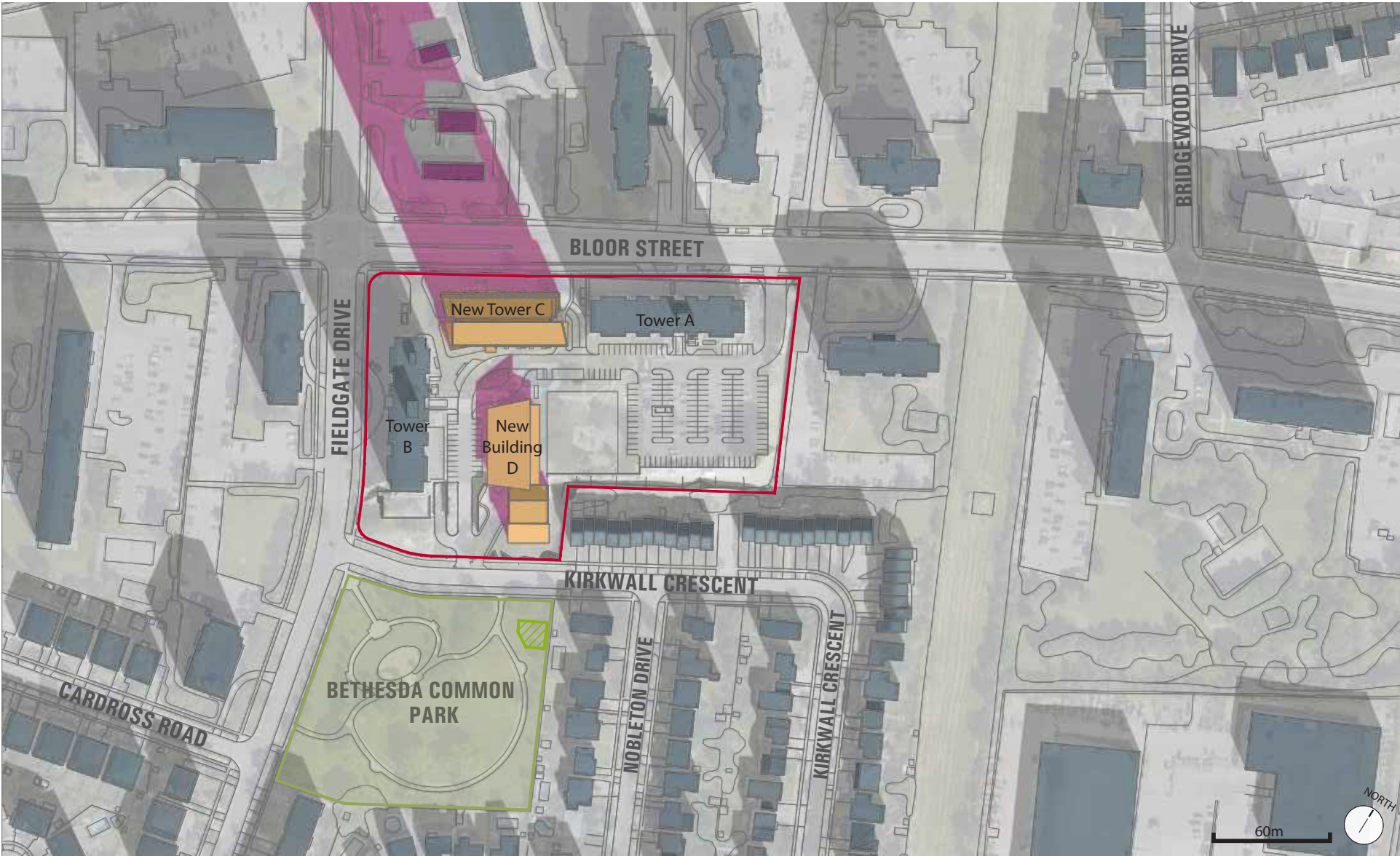


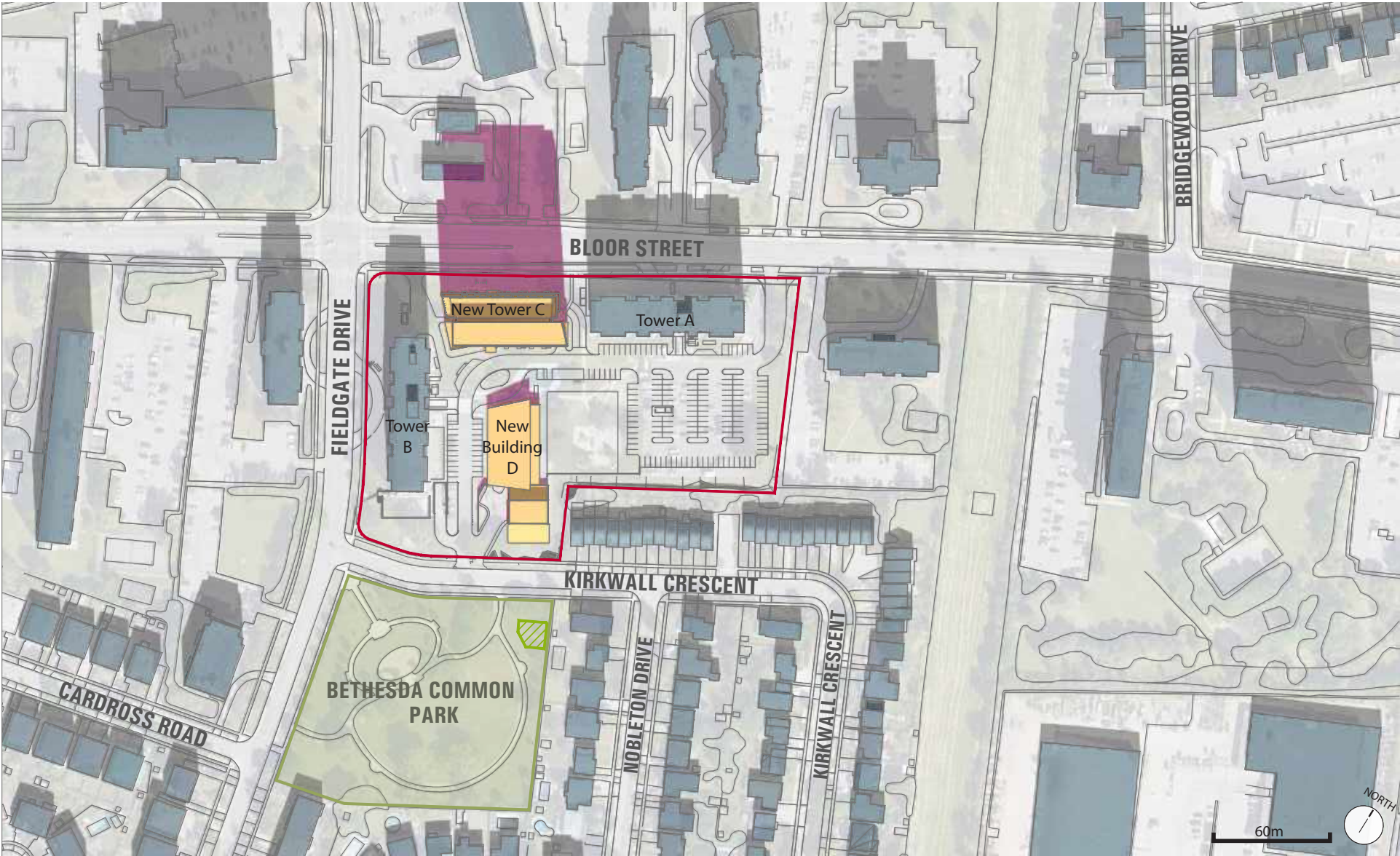
Figure 4 - Turf and flower gardens in public park areas key map



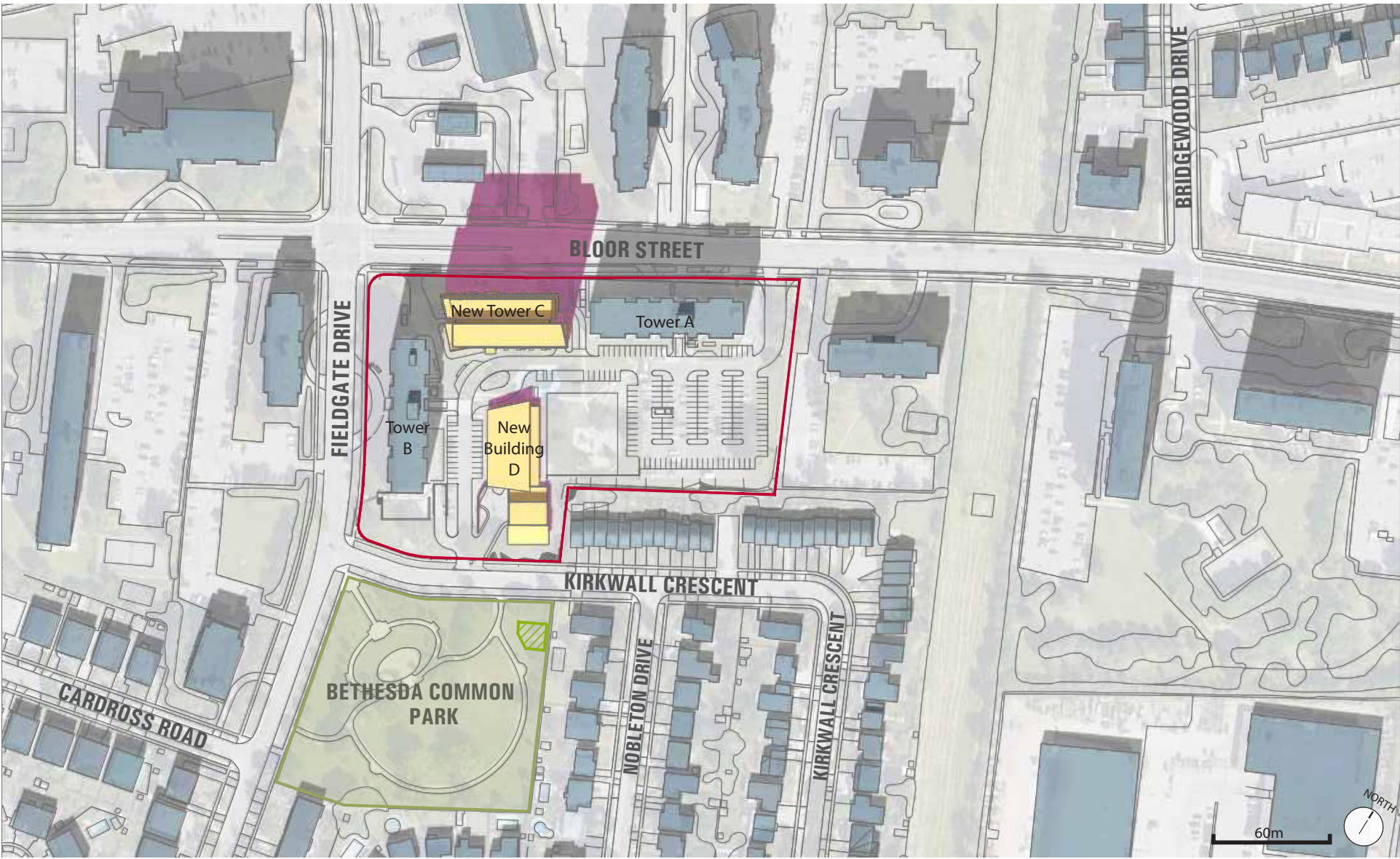
- Subject Site
- Existing Buildings
- Proposed
- Shadow Cast by Proposed Development
- Shadow Cast by existing buildings
- Existing Park
- Turf and flower gardens in public parks

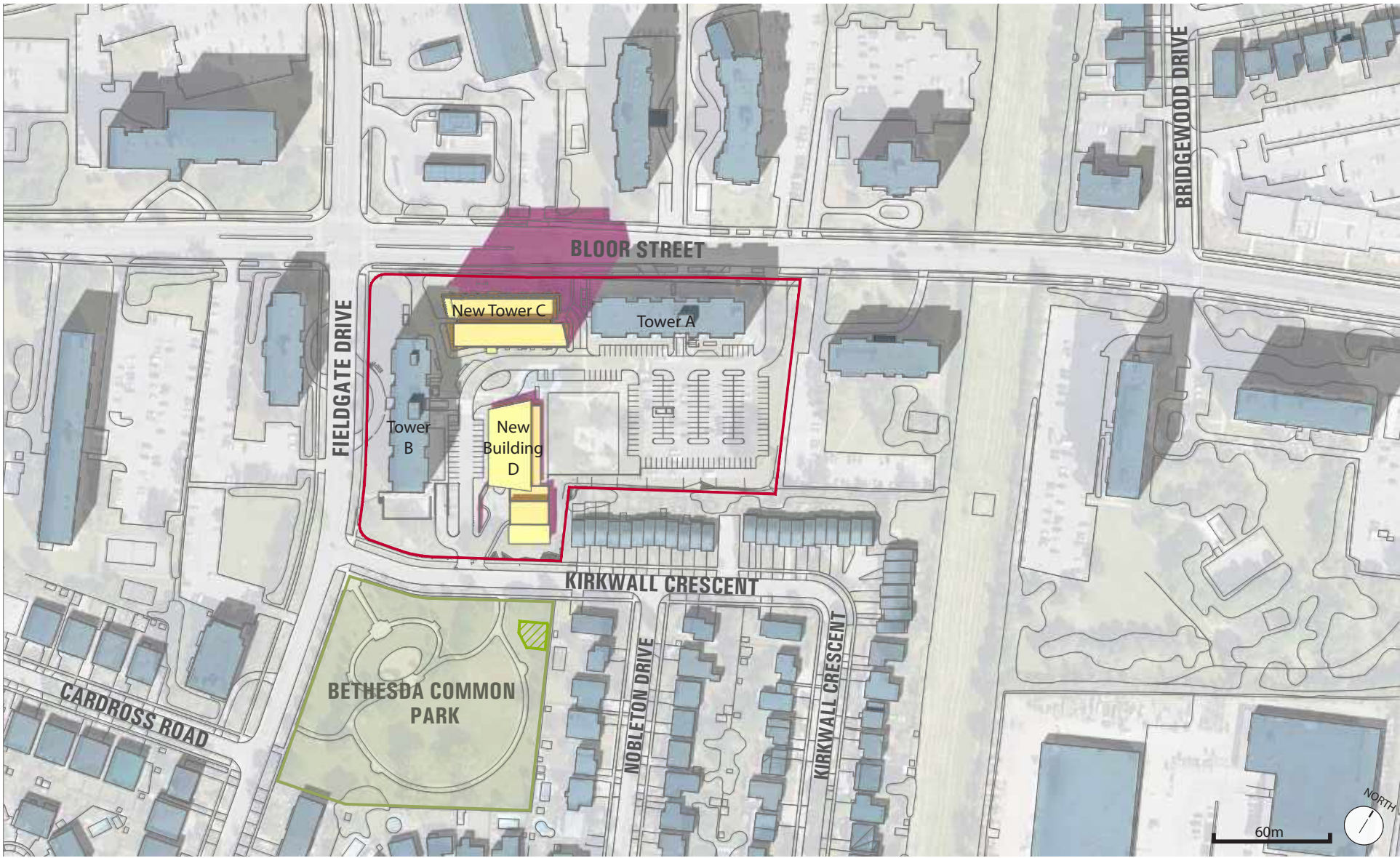


- Subject Site
- Existing Buildings
- Proposed
- Shadow Cast by Proposed Development
- Shadow Cast by existing buildings
- Existing Park
- Turf and flower gardens in public parks

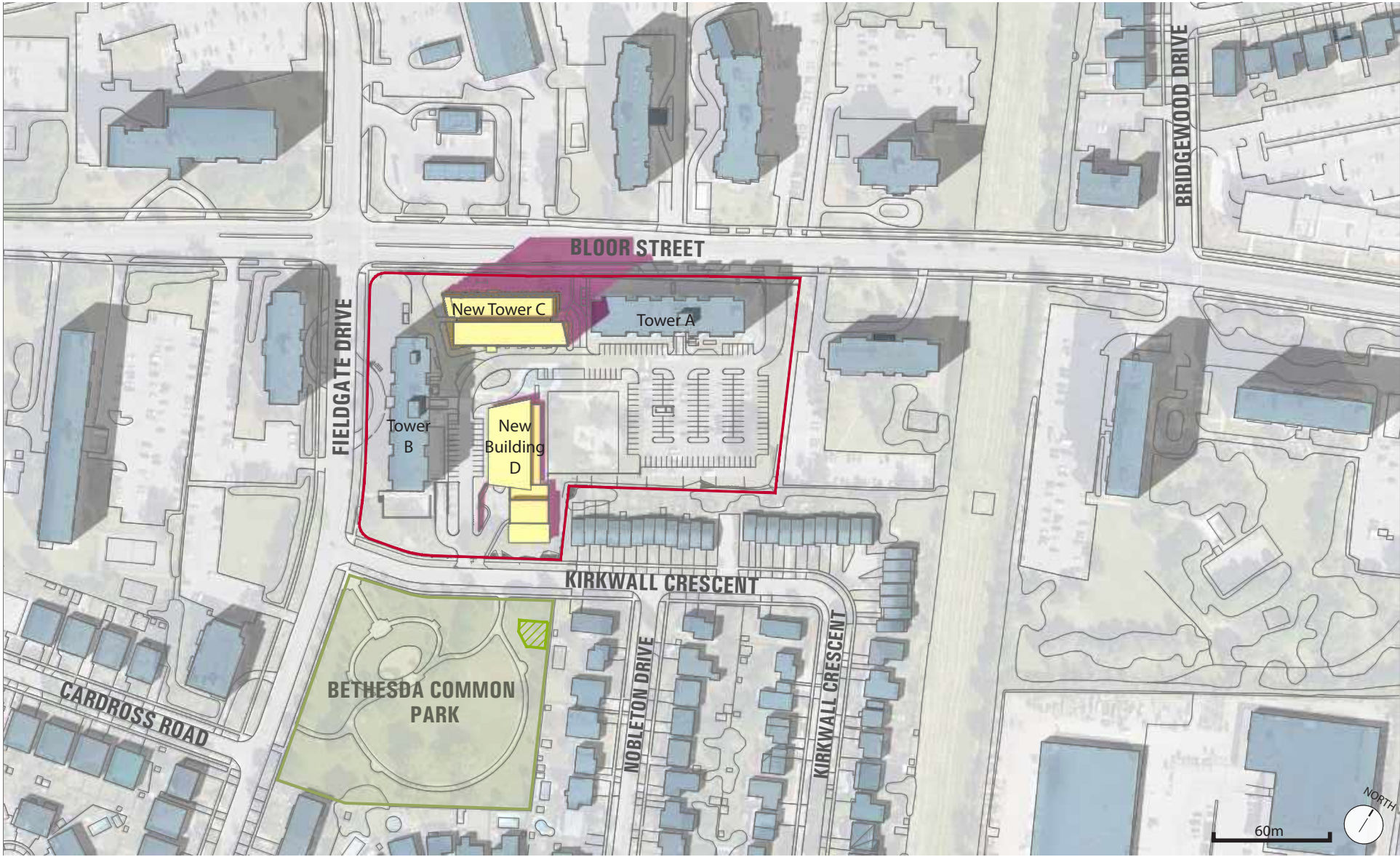


- Subject Site
- Existing Buildings
- Proposed
- Shadow Cast by Proposed Development
- Shadow Cast by existing buildings
- Existing Park
- Turf and flower gardens in public parks

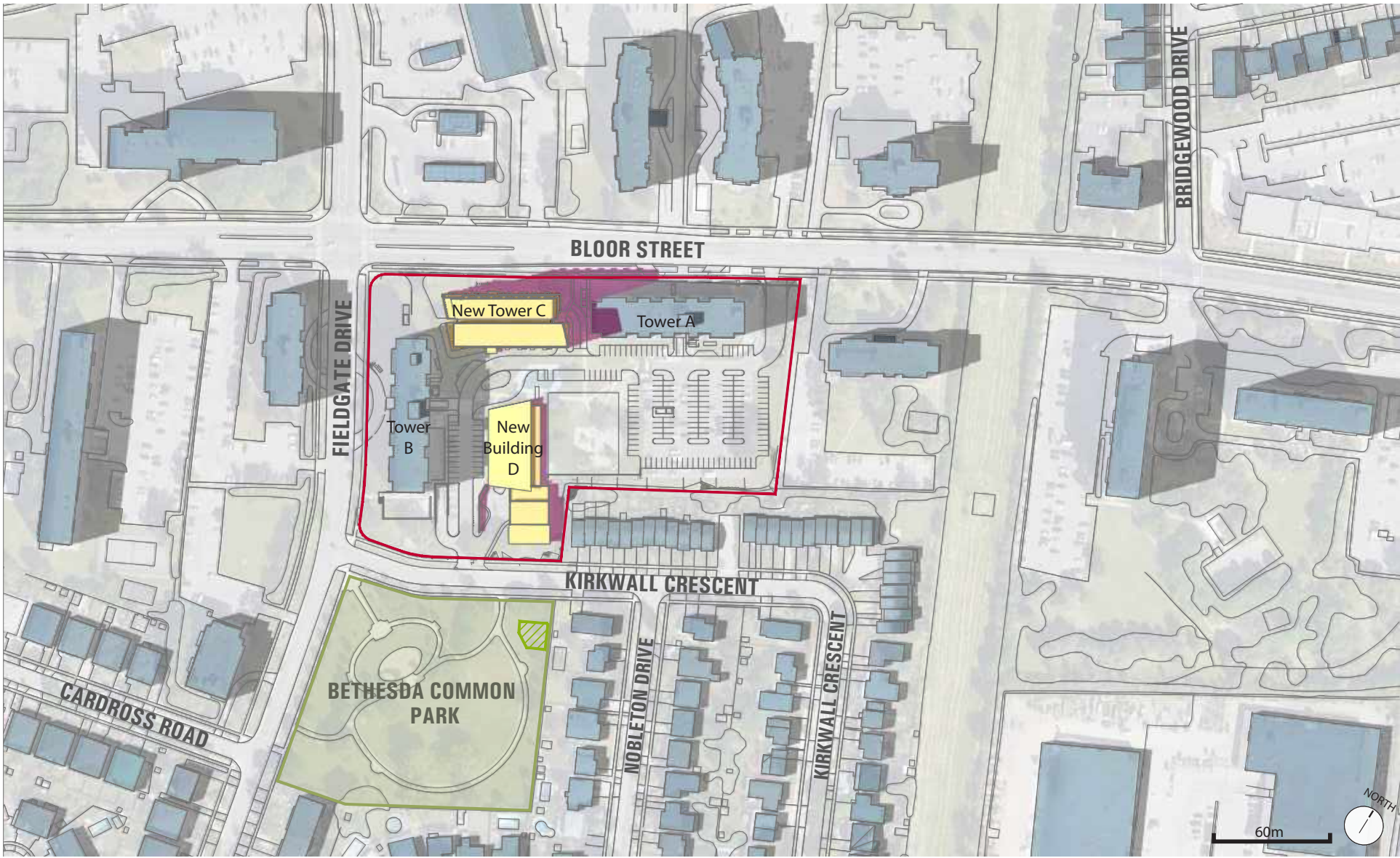




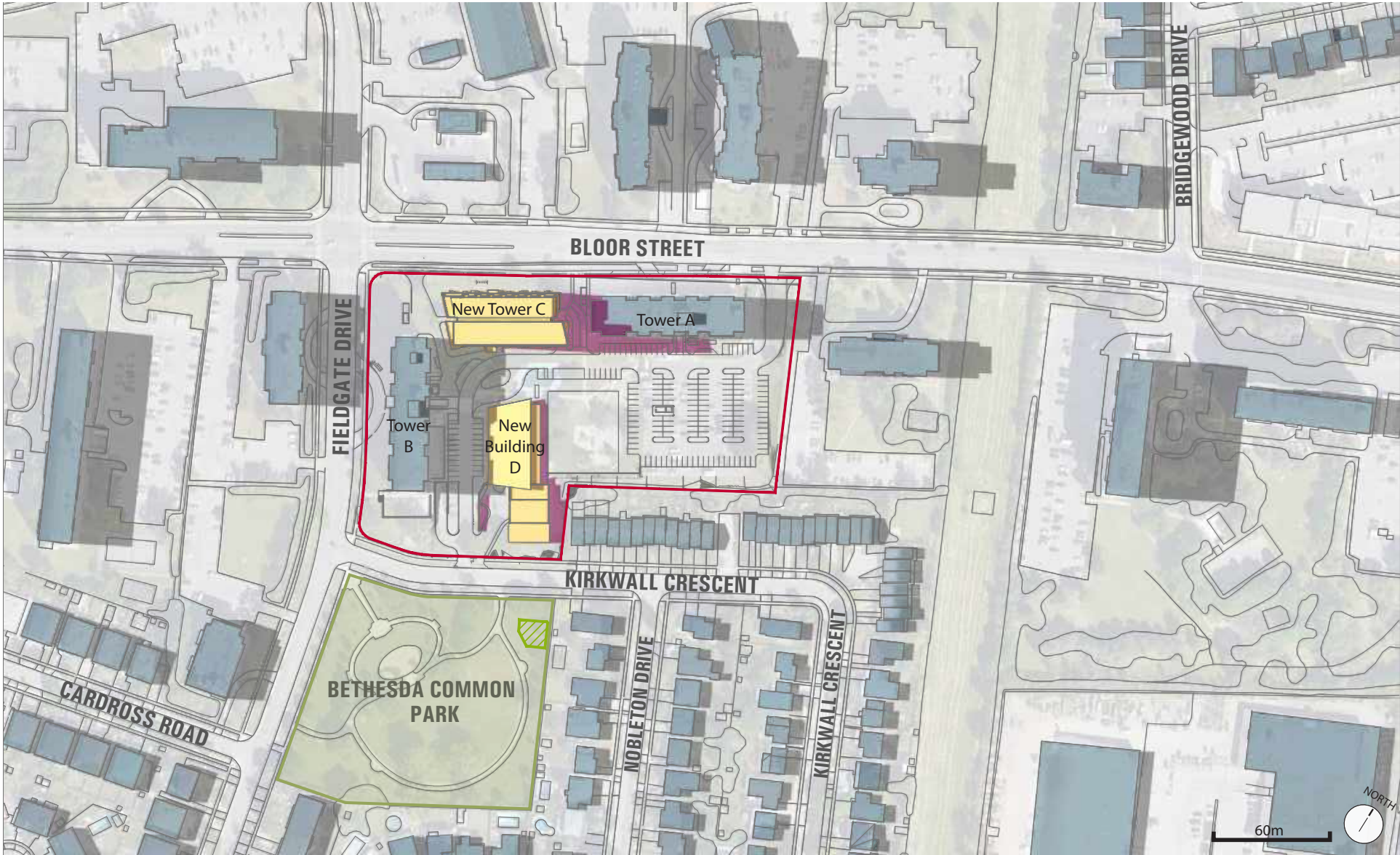
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- Existing Buildings
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- Shadow Cast by Proposed Development
- Shadow Cast by existing buildings
- Existing Park
- Turf and flower gardens in public parks



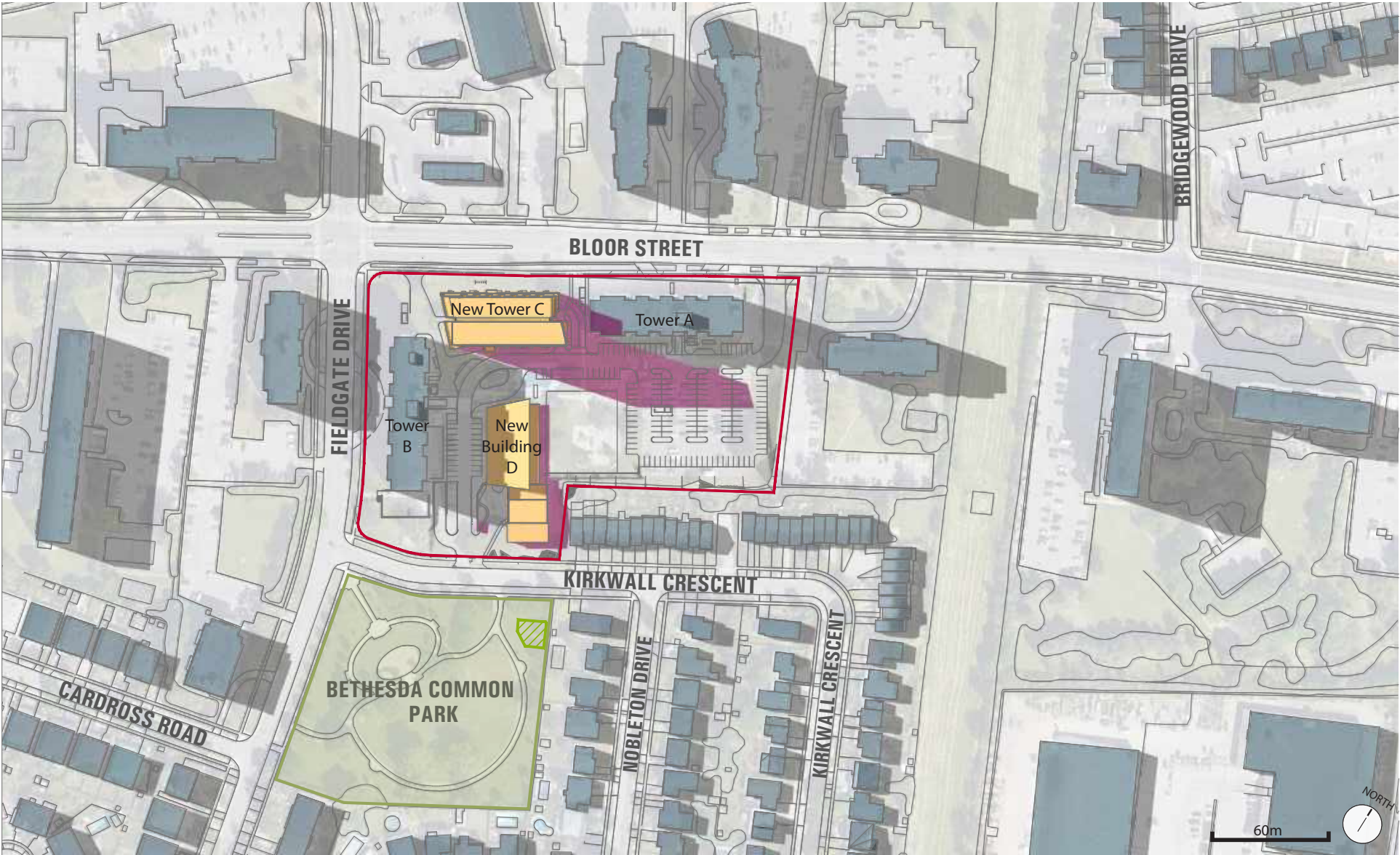
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- Shadow Cast by Proposed Development
- Shadow Cast by existing buildings
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- Turf and flower gardens in public parks



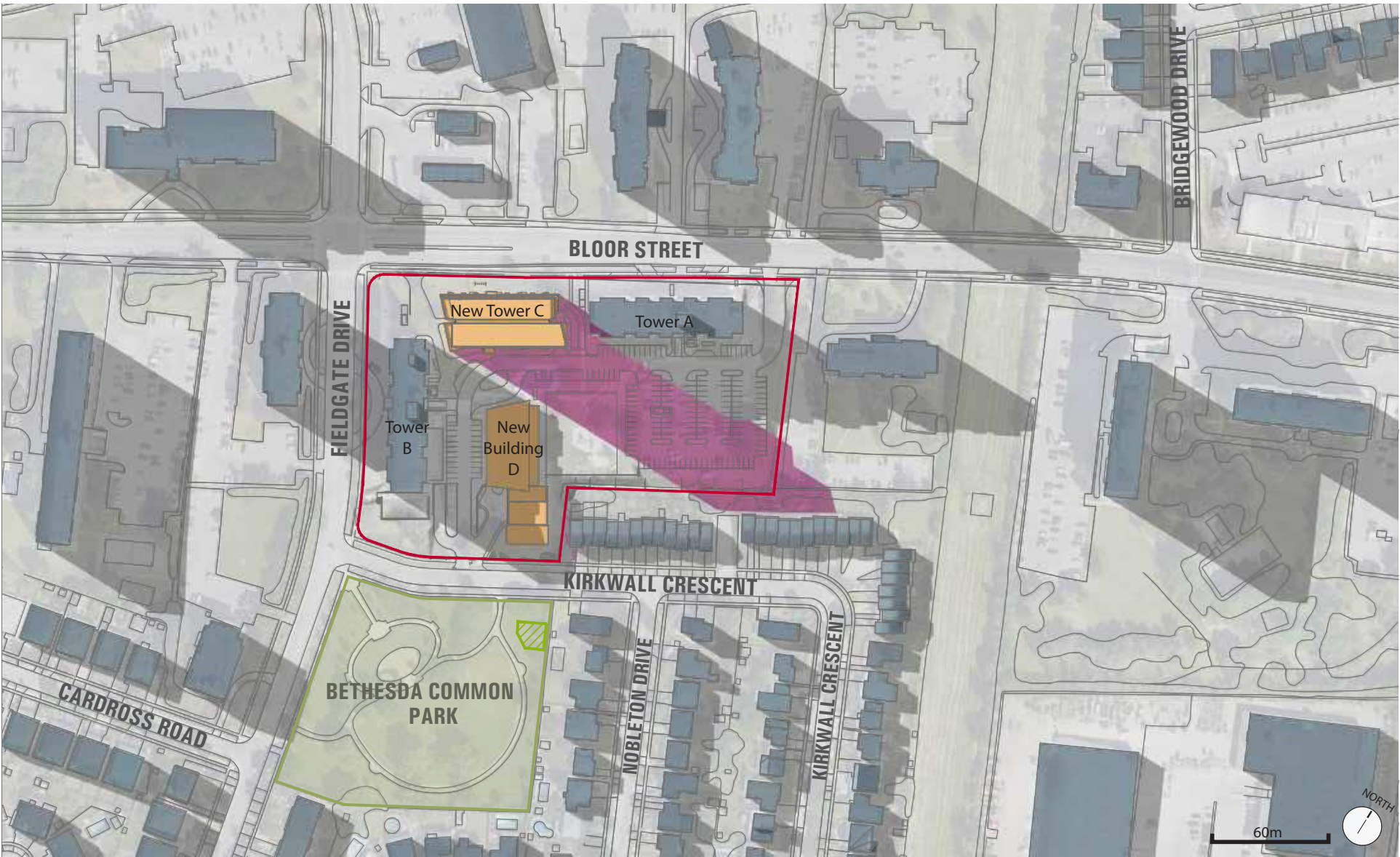
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- Existing Buildings
- Proposed
- Shadow Cast by Proposed Development
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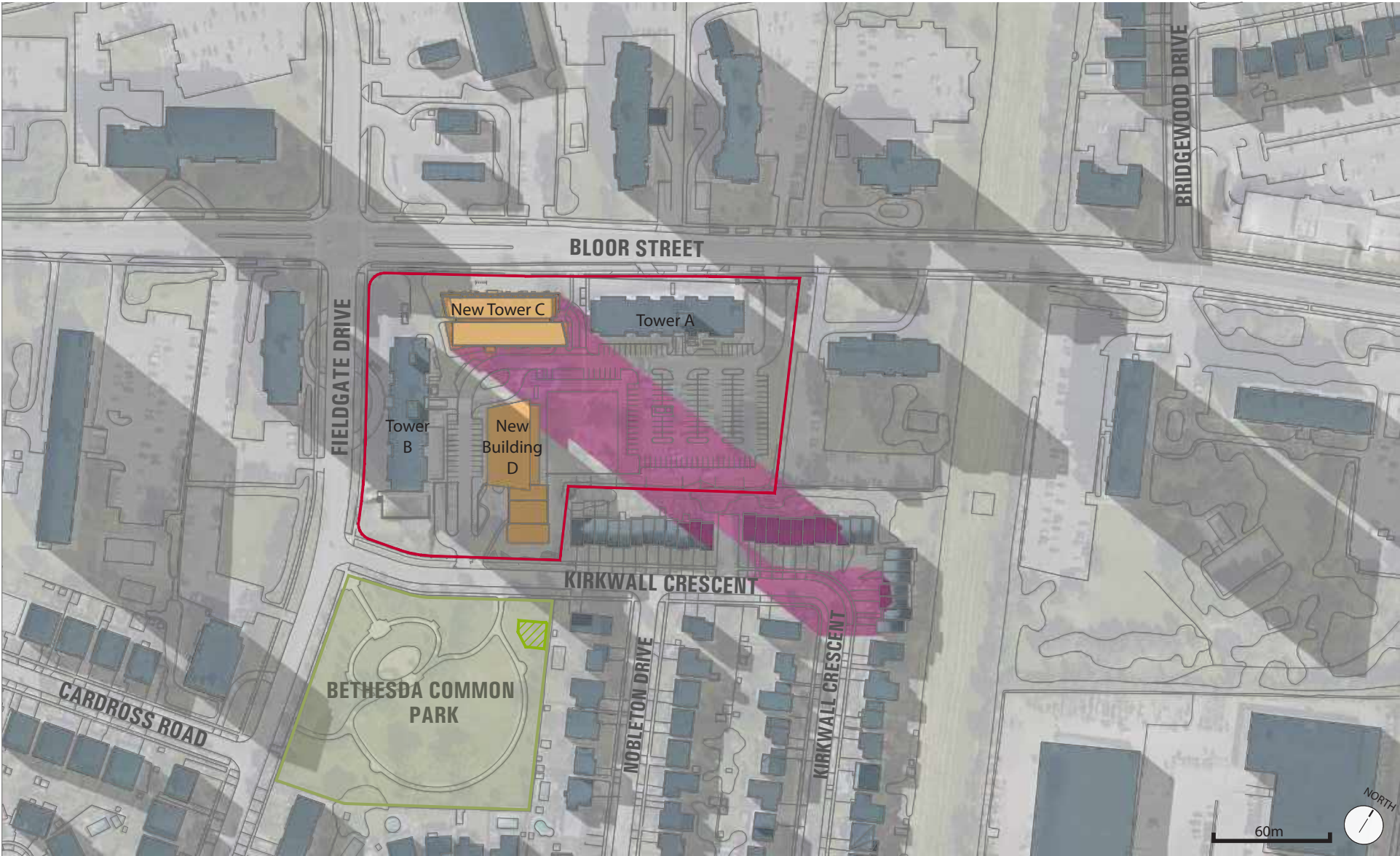
- Subject Site
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6.0 BUILDING FACES TO ALLOW FOR THE POSSIBILITY OF USING SOLAR ENERGY

Section 3.5 of the Mississauga Urban Design Terms of Reference – Standards for Shadow Studies states that shadow impacts from proposed developments should not exceed one hour in duration on the roofs, front, rear and exterior side walls of adjacent low rise (one to four storeys) residential buildings including townhouses, detached and semi-detached dwellings on September 21, in order to allow for the possibility of harvesting solar energy.

The line of impact assessment shall be a line at grade, 3 m from the front, rear and exterior side wall of the adjacent low rise residential buildings.

This criteria is met if there is shadow impact for no more than two consecutive hourly test times in the “No Impact Zone” (identified in blue) i.e. the space between the front, rear and exterior side walls of the adjacent low rise residential buildings and the respective lines of impact assessment.

The findings of the shadow analysis show that the proposal for full sun on building faces to allow for the possibility of using solar energy areas are in accordance with this standard. As such, criteria for section 3.5 is met.

Figure 5 - Building faces to allow for possibility of using solar energy key map identifies all areas in the vicinity.

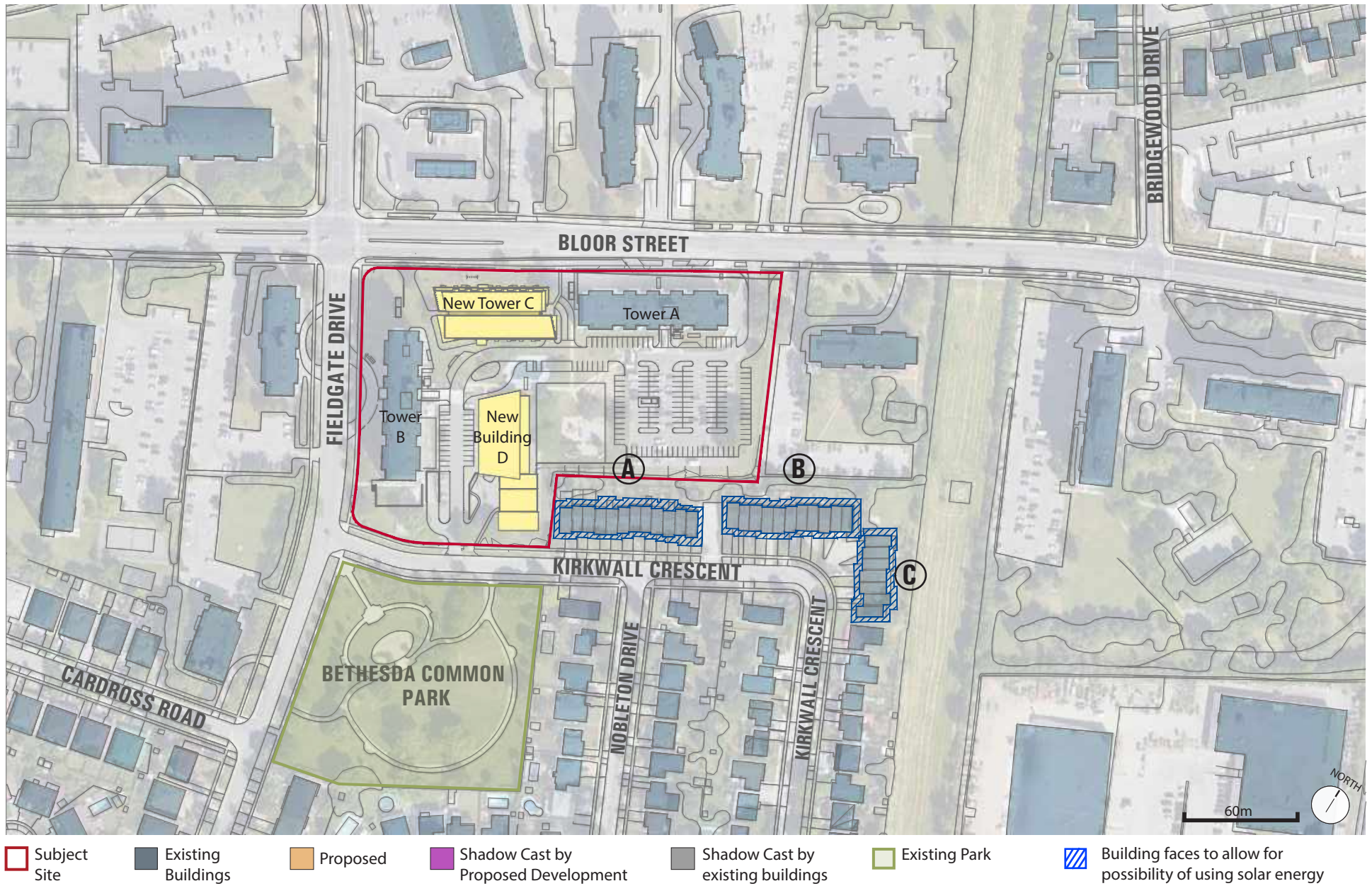
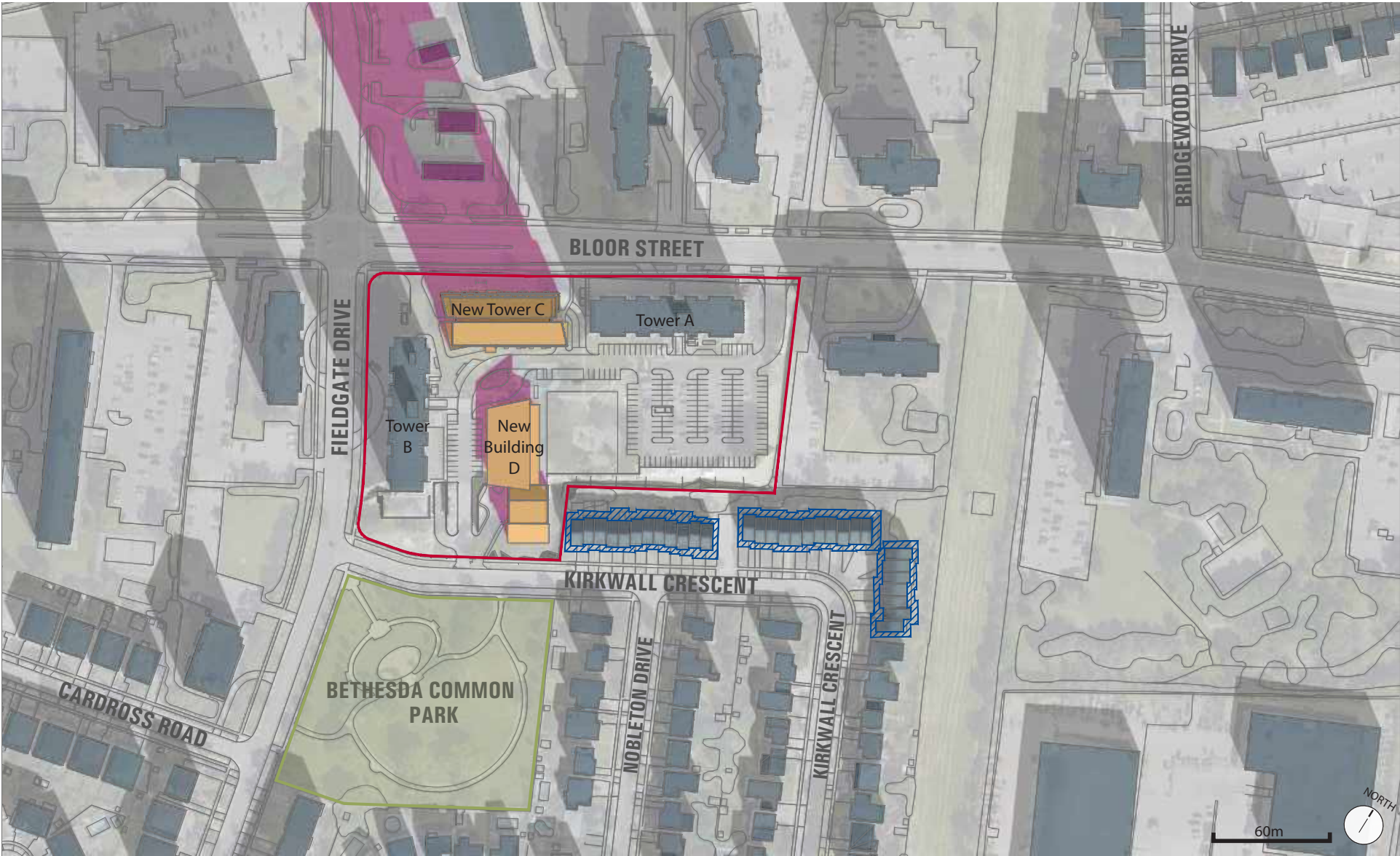


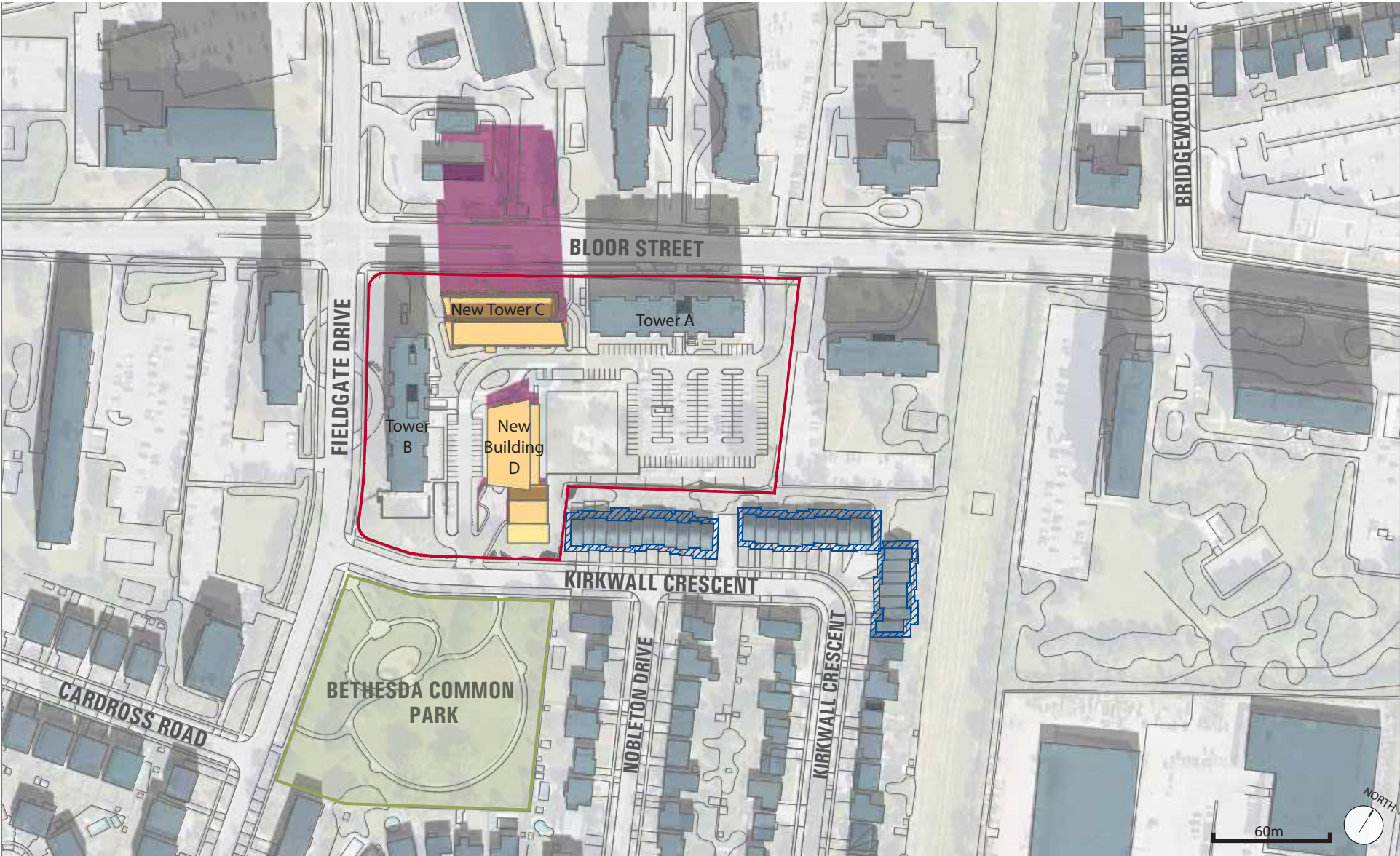
Figure 5 - Building faces areas key map



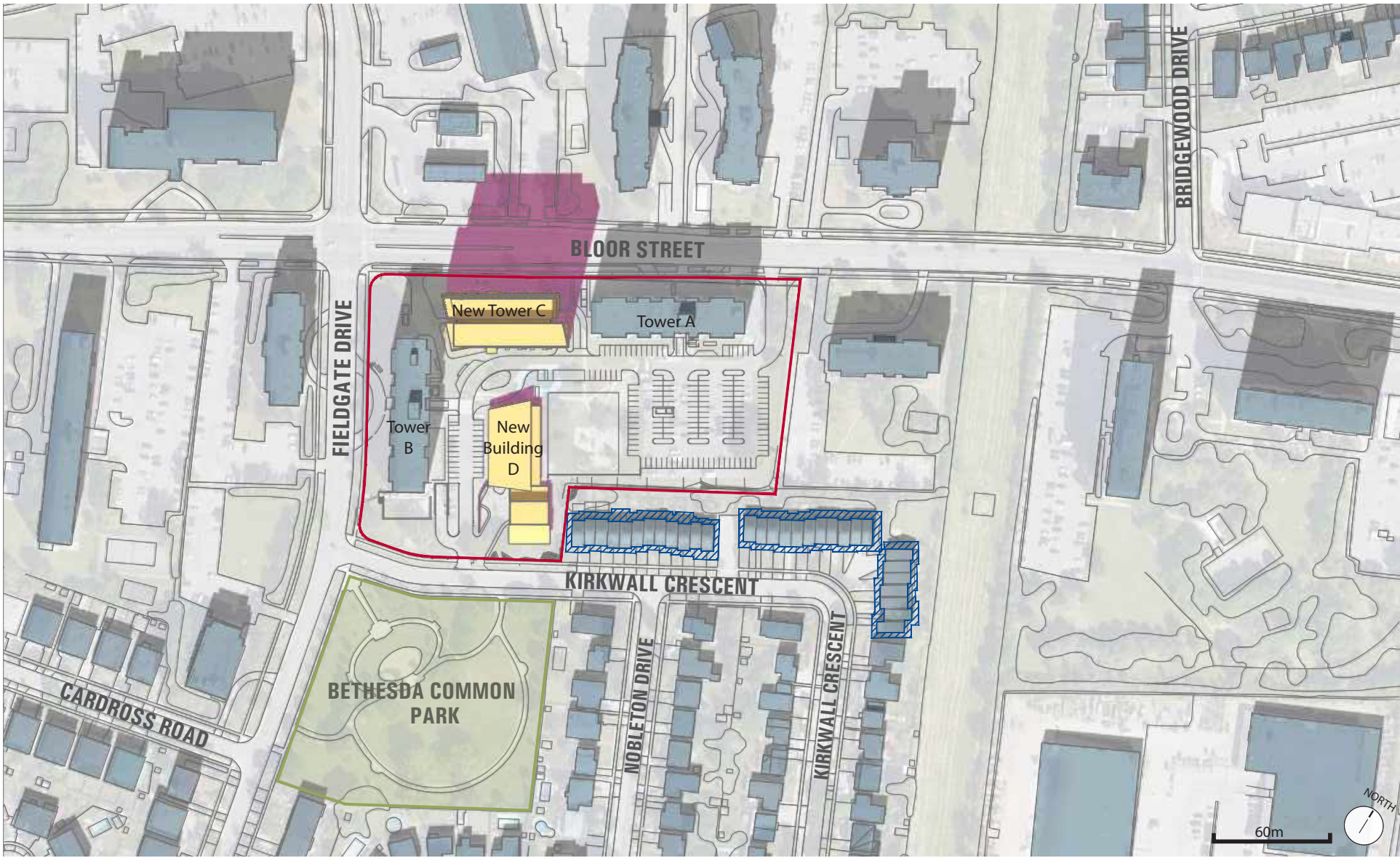
- Subject Site
- Existing Buildings
- Proposed
- Shadow Cast by Proposed Development
- Shadow Cast by existing buildings
- Existing Park
- Building faces to allow for possibility of using solar energy



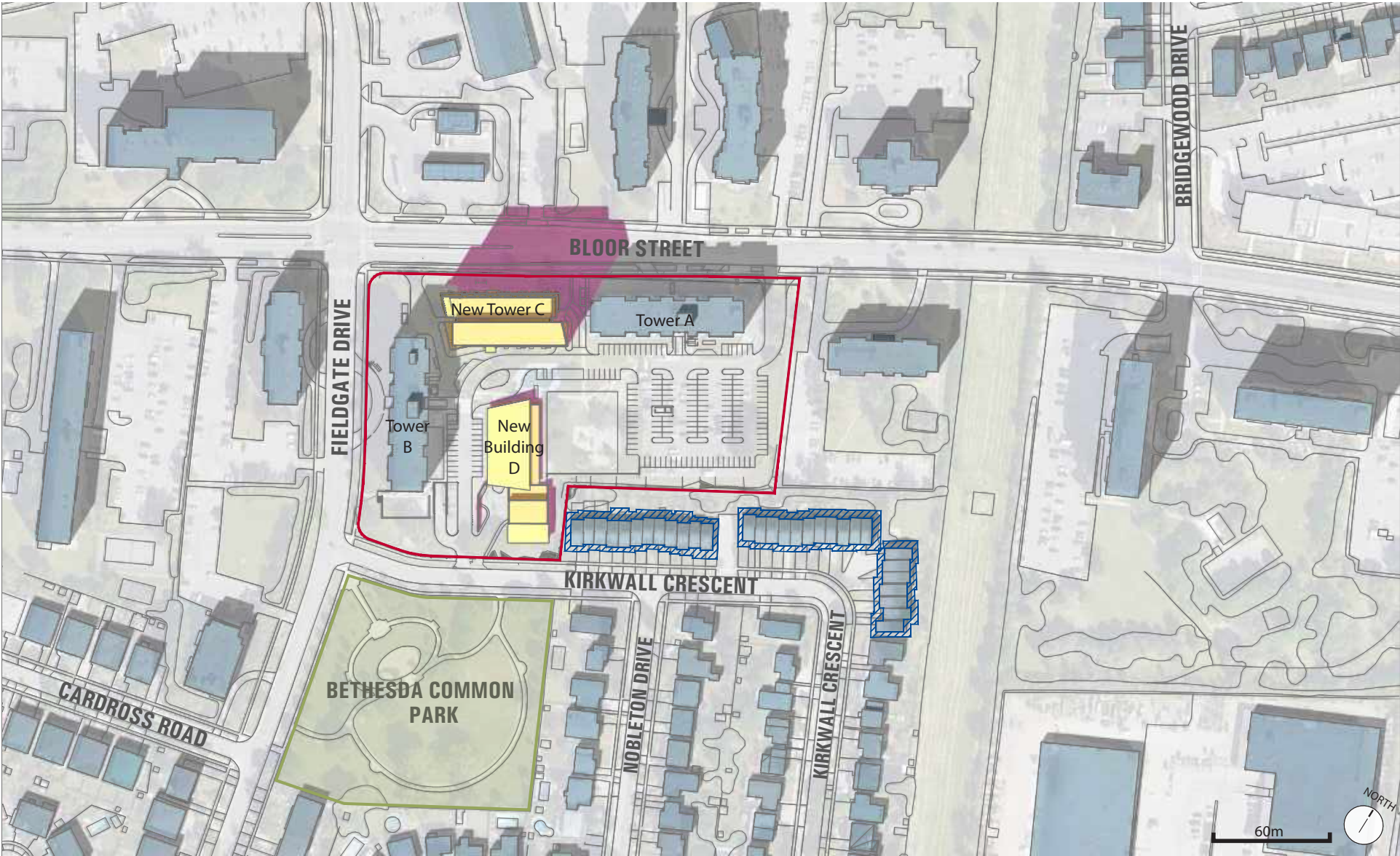
- Subject Site
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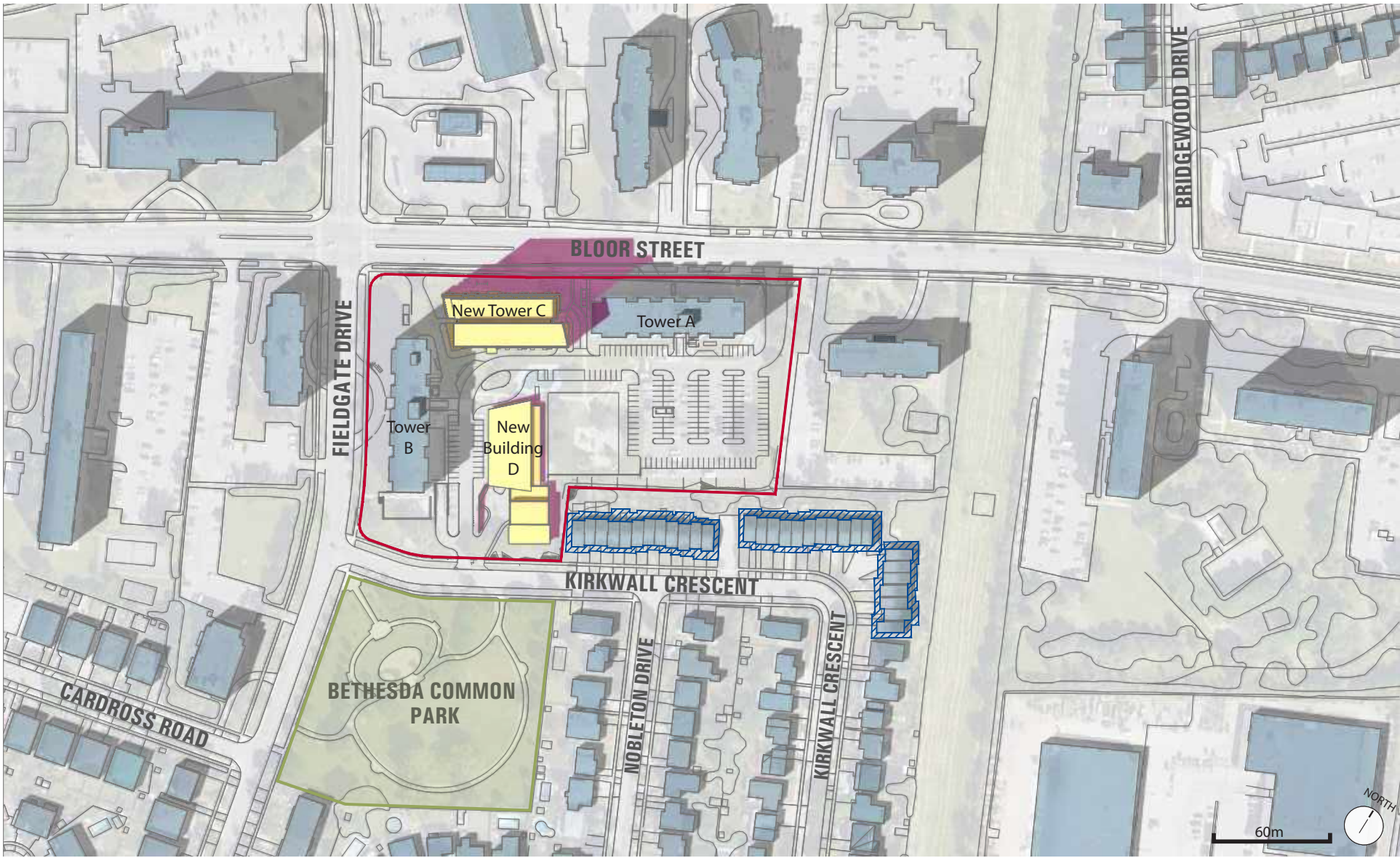
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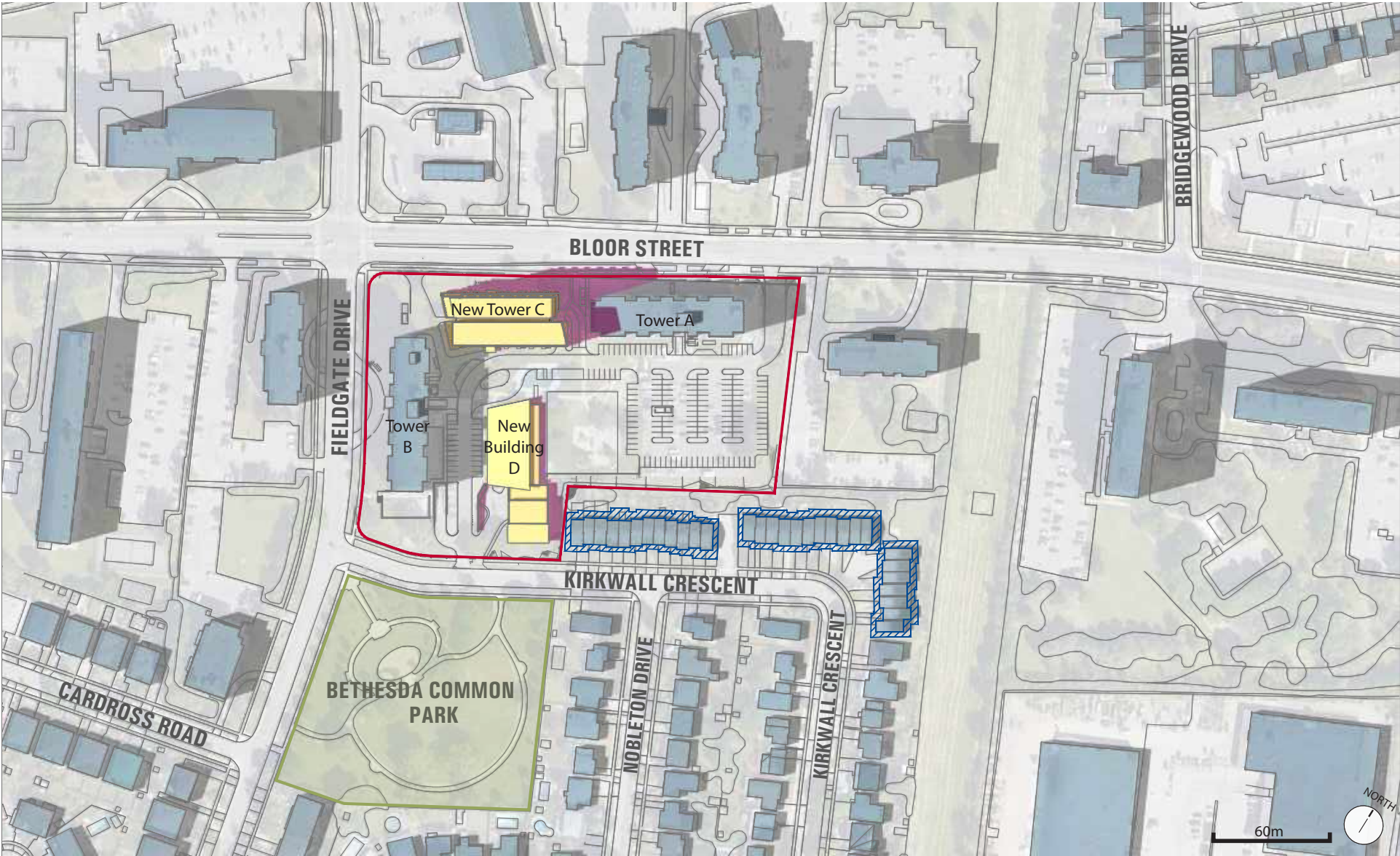
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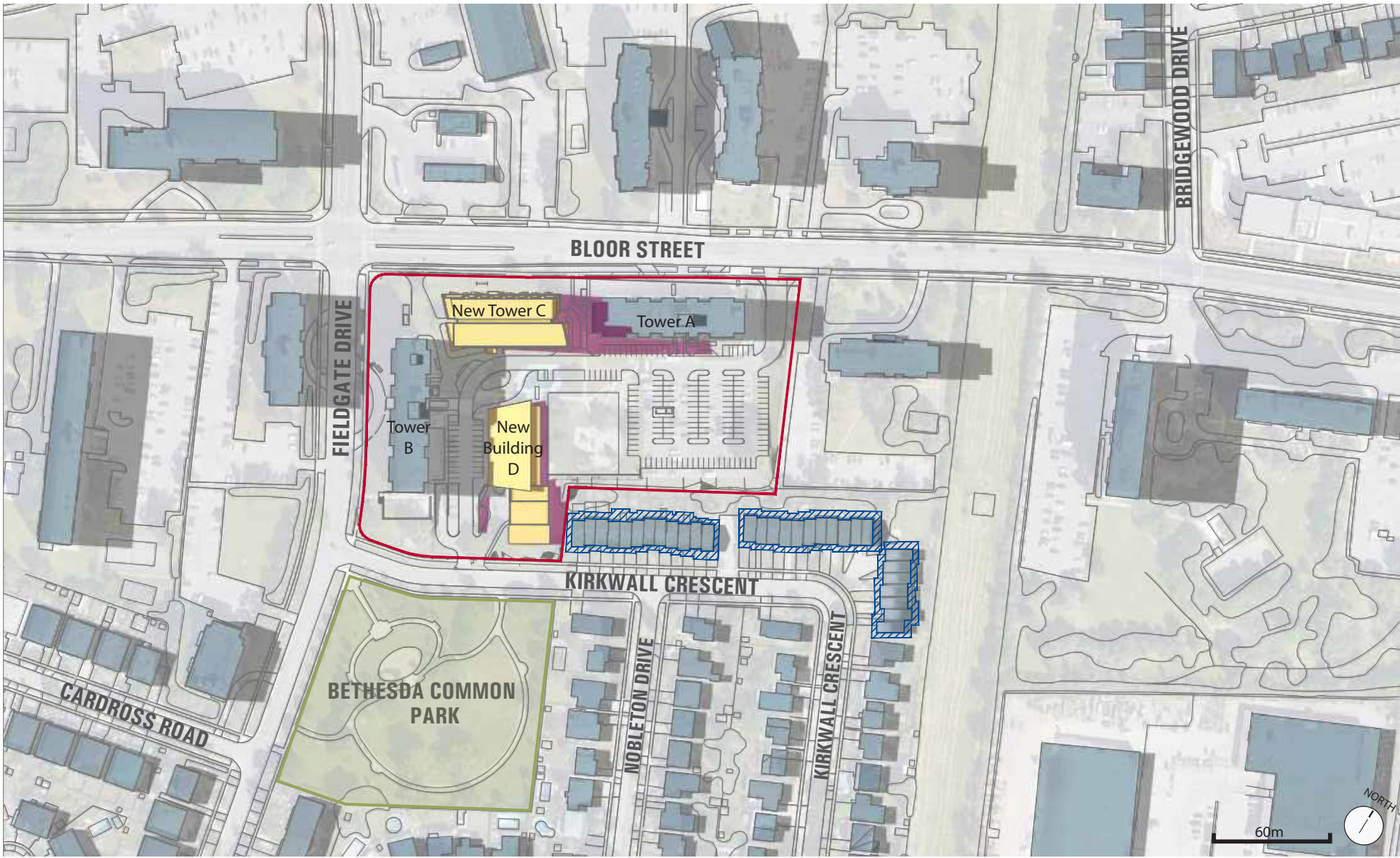
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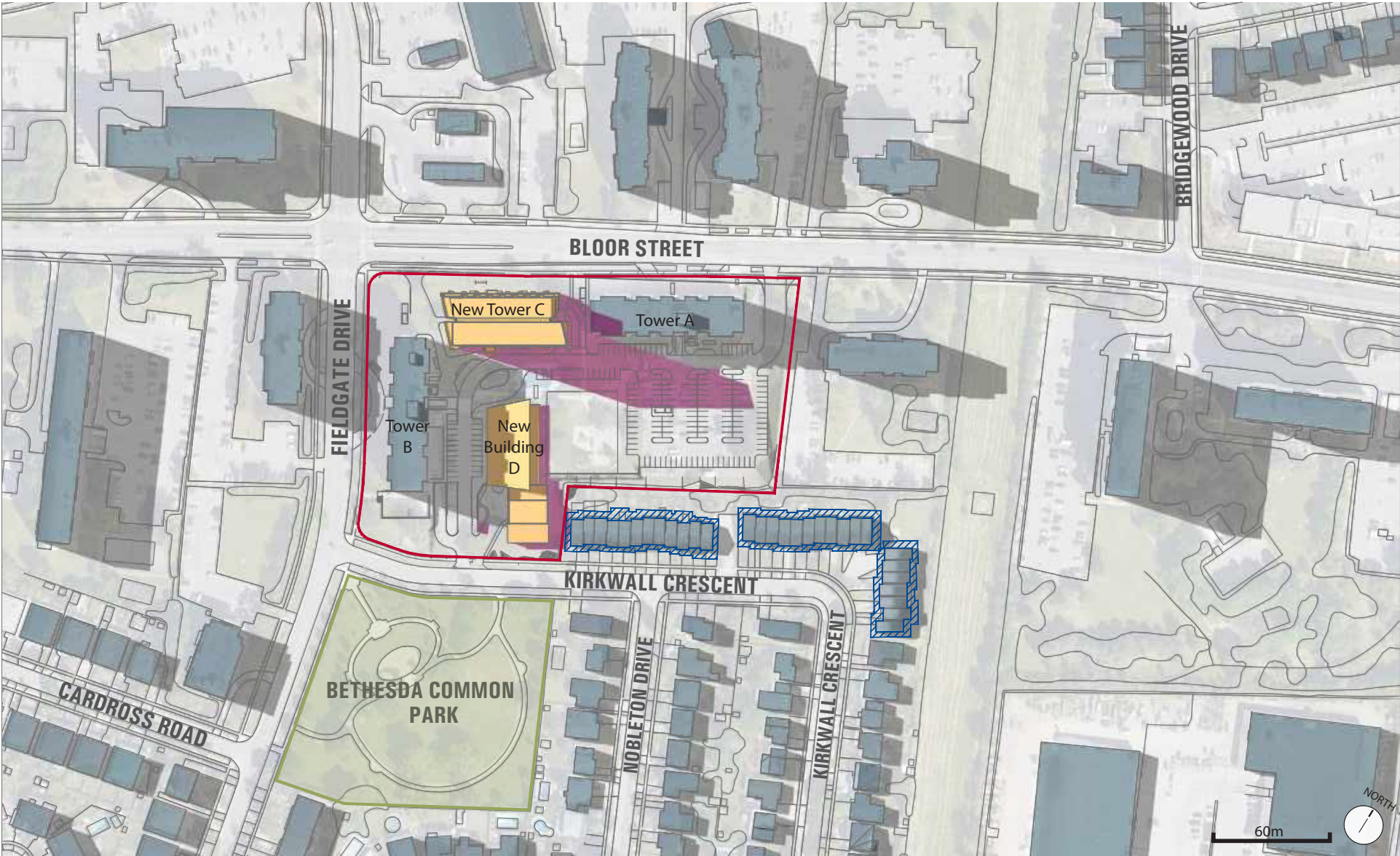
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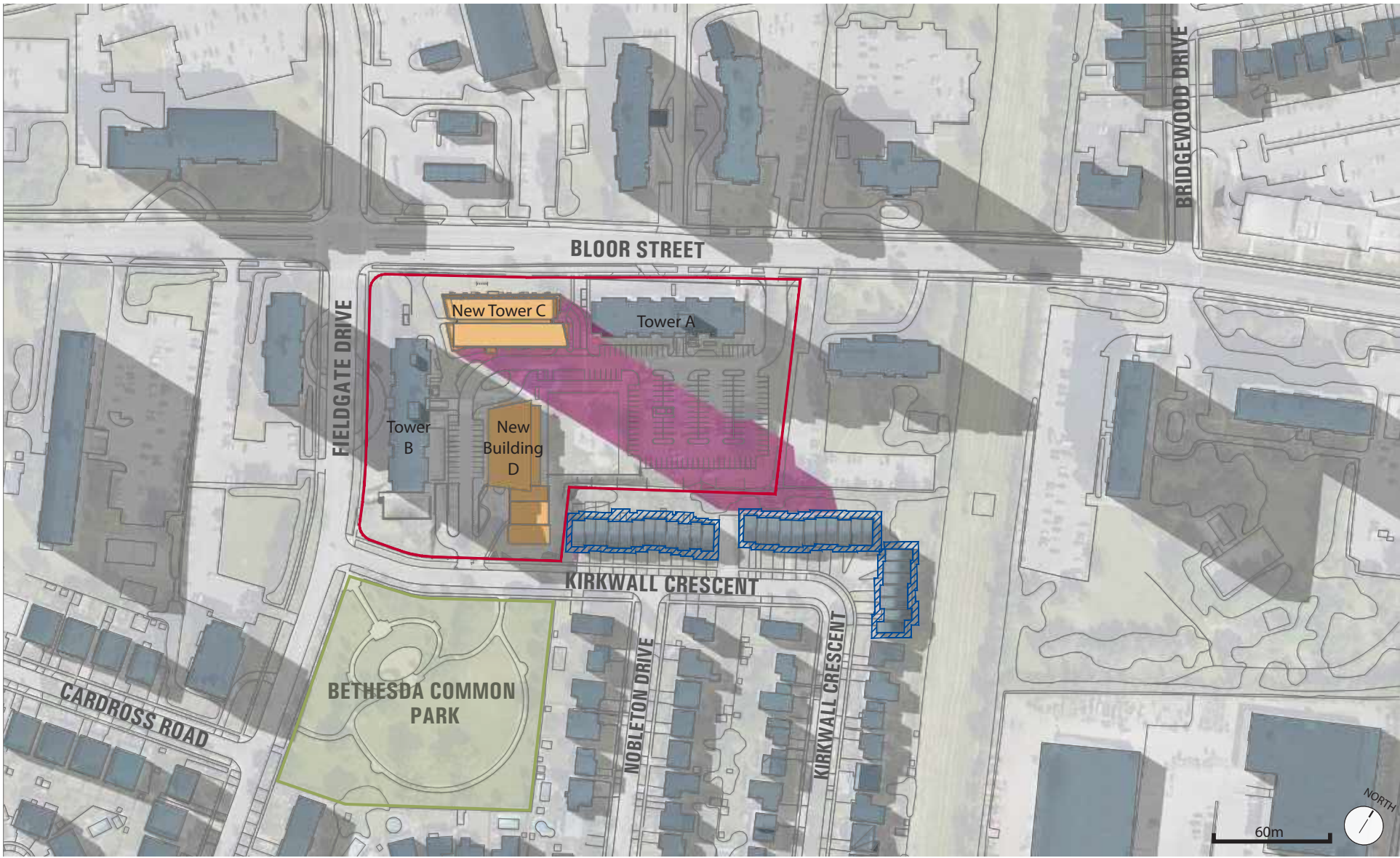
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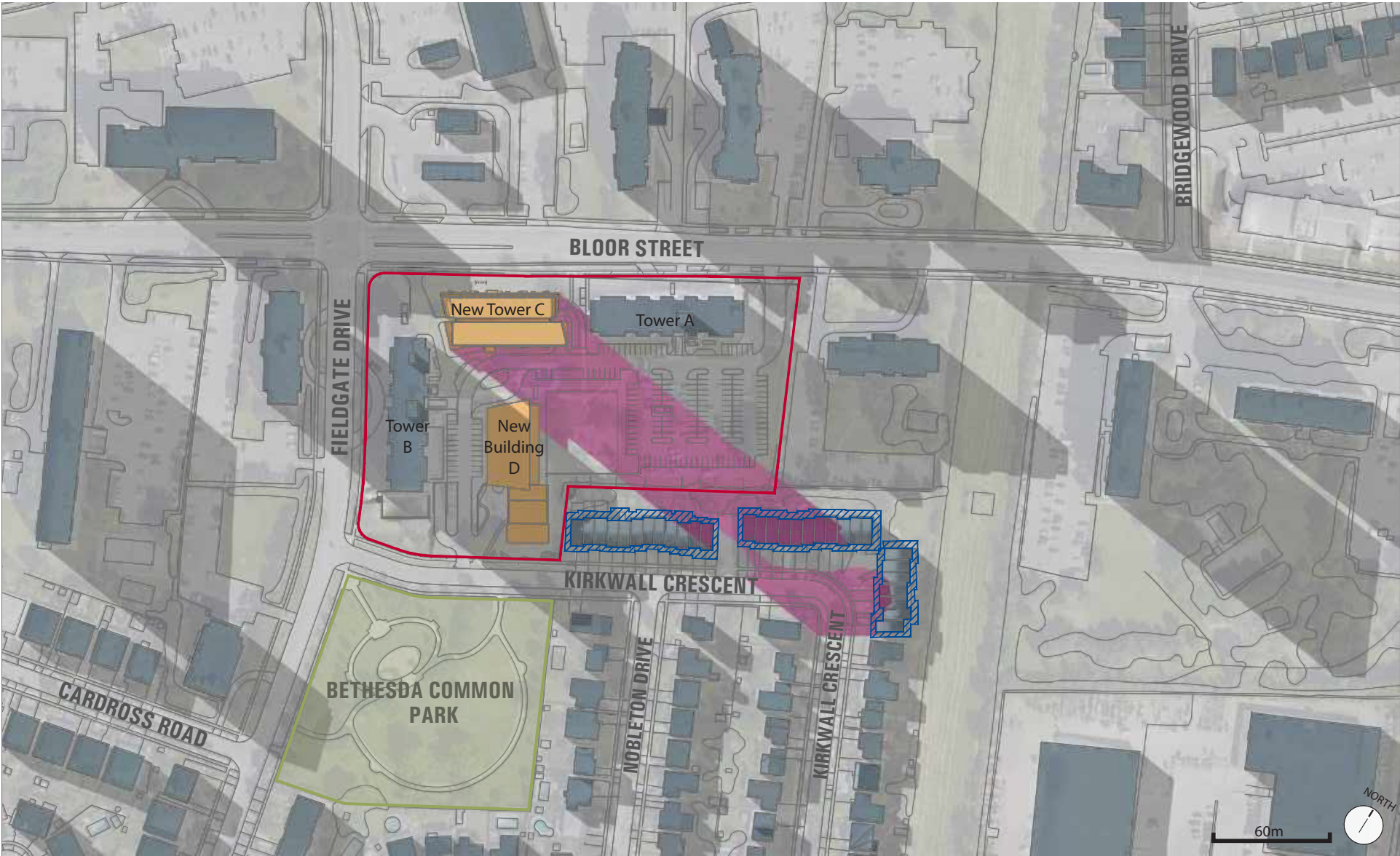
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7.0 CONCLUSIONS

Based on this analysis, it is our opinion that the proposed development will create minimal and acceptable shadowing impacts on adjacent low-rise neighbourhoods, private amenity areas, and public parks in accordance with Policy 9.2.2.3 and Policy 9.5.3.9 of the Mississauga Official Plan.

8.0 CALCULATIONS

3.2) COMMUNAL OUTDOOR AMENITY AREA (A_T)= 7,289M²

June	area in sunshine (As)
707	5,459.00
720	5,441.00
820	5,992.00
920	6,616.00
1020	7,067.00
1120	7,110.00
1220	7,049.00
120	6,963.00
210	7,067.00
320	6,740.00
420	7,107.00
520	3,983.00
620	3,192.00
720	2,926.00
733	2,939.00
Average of Areas in Sunshine (As(ave))	5,710.00
Sun Access Factor	0.78

September	area in sunshine (As)
835	5,467.00
912	6,119.00
1012	6,739.00
1112	6,367.00
1212	6,616.00
112	6,831.00
212	6,899.00
312	6,905.00
412	6,175.00
512	3,904.00
548	2,077.00
Average of Areas in Sunshine (As(ave))	5,827.00
Sun Access Factor	0.80
Dec	area in sunshine (As)
919	4999.0
1017	4845.0
1117	5404.0
1217	6232.0
117	6308.0
217	4967.0
315	4006.0
Average of Areas in Sunshine (As(ave))	5,252.00
Sun Access Factor	0.72

3.3) PUBLIC REALM

BETHESDA COMMON PARK= 12,383m²

September	area in sunshine (As)
835	12,256.00
912	12,332.00
1012	12,419.00
1112	12,317.00
1212	12,335.00
112	12,353.00
212	12,383.00
312	12,383.00
412	12,383.00
512	12,325.00
548	11,749.00
Average of Areas in Sunshine (As(ave))	12,294.00
Sun Access Factor	0.99

