

DENVER'S GREEN ROOF INITIATIVE: IS IT SUSCEPTIBLE TO DEVELOPER CHALLENGE?

Denver citizens passed the Green Roof Initiative (Initiative) on November 7, 2017,¹ as part of a growing worldwide trend toward greater environmental consciousness in city planning.² The Initiative compels builders to install plant material or a combination of plant materials and solar energy collection on a portion of the building's roof.³ Buildings over 25,000 square feet of floor area must have a minimum of 20% of their roofs covered in green material.⁴ This ratio increases in proportion with the size of the project, with a peak of 60% required for buildings over 200,000 square feet.⁵ The Initiative reaches all new construction and remodels or additions undertaken after January 1, 2018.⁶

Based on the novelty of green roof technology and its cost-benefit analysis, there is a nationwide lack of consensus among cities on how best to implement green roof policies.⁷ Multiple cities have passed ordinances incentivizing green roof construction through rebates, density bonuses, and tax breaks.⁸ For example, Chicago's green roof ordinance provides developers with tax-increment finance dollars for green roofs installed in the downtown area.⁹ A minority of cities, Denver included, have passed ordinances mandating green-roof construction, imposing penalties for failure to comply with the ordinance.¹⁰ The Initiative took effect January 1, 2018; any new construction or remodeling projects undertaken after that date requires applicants to apply for a green roof permit from the Denver Planning Board as part of the general permitting process.¹¹ The Initiative grandfathers any existing projects if the applicant submitted a complete building permit application or site plan appli-

1. *Denver's Green Roof Initiative*, CITY & COUNTY DENV., <https://www.denvergov.org/content/denvergov/en/denver-development-services/commercial-projects/green-roof-initiative.html> (last visited Apr. 22, 2018).

2. See Juliya Litichevskaya, *Reviving the World Wonder: Why Rooftop Gardens Should Cover Urban Landscapes*, 37 RUTGERS COMPUTER & TECH. L.J. 58, 59 (2011); Jane Jacobs, *The Greening of the City*, N.Y. TIMES (May 16, 2004), <https://www.nytimes.com/2004/05/16/magazine/the-greening-of-the-city.html>.

3. DENVER, COLO. REV. MUNICIPAL CODE, ch. 10, art. XIII, § 10-301(a)(2) (2018).

4. *Id.* § (a)(1).

5. *Id.*

6. *Id.*

7. Carl J. Circo, *Using Mandates and Incentives to Promote Sustainable Construction and Green Building Projects in the Private Sector: A Call for More State Land Use Policy Incentives*, 112 PENN ST. L. REV. 731, 732 (2008).

8. *Id.* at 756; James D. Brown, *Biophilic Laws: Planning for Cities with Nature*, 34 VA. ENVTL. L.J. 52, 86–89 (2016).

9. Bradley Ritter et al., *The Chicago Standard*, CBA REC., Nov. 2010, at 54.

10. Circo, *supra* note 7.

11. § 10-302(a).

cation prior to January 1, 2018.¹² As part of the application process, an applicant must pay an additional fee¹³ for the permit and provide information about the project's "structural design; intended use of the roof and whether or not it will be accessible to the public; and fire safety provisions."¹⁴ Anyone who violates the Initiative faces a fine of \$999.00 or imprisonment of up to one year.¹⁵

As part of the Initiative, the mayor of Denver appoints members for a Green Roof Technical Advisory Group to assist with "technical issues relating to the creation, implementation[,] and development of the City of Denver Green Roof Construction Standard."¹⁶ As currently proposed, the Initiative contemplates exemptions from the green roof requirements.¹⁷ If an applicant is unable to comply with the green roof requirements due to infeasibility, the applicant may contact the Denver Planning Board to receive a complete or partial exemption.¹⁸ In the event of a cash-in-lieu of a total or partial green roof exemption, an applicant must pay \$25.00 per square foot to cover the cost of the difference between the required green-square-footage and the actual green-square-footage, with the funds directed to the Denver Office of Sustainability.¹⁹ Although the Initiative is still in its infancy and has not yet fully been implemented,²⁰ its mandatory provisions raise an important land-use issue: exactions.

Citing added costs for green materials and knowledgeable workers, irate developers may bring a suit alleging a taking²¹ under the Takings Clause of the Fifth Amendment.²² The Takings Clause prevents governments from taking private property without providing just compensation.²³ Local governments' power to regulate land use stems from state

12. § 10-301(d)(1)(a)–(b).

13. There is an additional fee unless the permit is sought in conjunction with a general building construction permit. § 10-302(b)(1)–(2).

14. § 10-302(a).

15. § 10-308(b)(2).

16. *Boards and Commissions*, CITY & COUNTY DENV., <https://www.denvergov.org/content/denvergov/en/mayors-office/about-the-office-of-the-mayor/boards-commissions.html> (last visited Apr. 22, 2018).

17. § 10-301(b)(1).

18. *Id.*

19. § 10-301(c)(1), (3).

20. The Initiative requires a Green Roof Technical Advisory Group to flesh out the technical standards. Faith Managan, *Denver Grappling over How to Enforce Stringent Mandatory Roof Gardens Rule*, FOX NEWS (Jan. 25, 2018), <http://www.foxnews.com/us/2018/01/25/denver-grappling-over-how-to-enforce-stringent-mandatory-roof-gardens-rule.html>.

21. Keith H. Hirokawa, *At Home with Nature: Early Reflections on Green Building Laws and the Transformation of the Built Environment*, 39 ENVTL. L. 507, 525–26, 552 (2009). Some studies have shown that green roof installations may cost developers an additional \$15.00 to \$18.00 per square foot. Catherine Malina, *Up on the Roof: Implementing Local Government Policies to Promote and Achieve the Environmental, Social, and Economic Benefits of Green Roof Technology*, 23 GEO. INT'L ENVTL. L. REV. 437, 445 (2011).

22. *Lucas v. South Carolina*, 505 U.S. 1003, 1015 (1992).

23. U.S. CONST. amend. V.

governments.²⁴ State police powers empower local governments to promulgate legislation to promote public health, safety, and the general welfare, but if the regulation “goes too far it will be recognized as a taking.”²⁵ Cases alleging a taking often fall within two categories: regulatory takings or exactions.²⁶ Regulatory takings are relatively rare and a successful suit requires a “government regulation of private property . . . so onerous that it is tantamount to a direct appropriation of the property.”²⁷ Exactions, however, are more commonly challenged.²⁸ An exaction is a condition imposed on a developer as a prerequisite to obtain governmental approval for a project.²⁹ Courts employ a two-pronged test to determine if an exaction goes “too far.”³⁰

Exactions must bear an essential nexus to the condition being imposed.³¹ In *Nollan*, the Nollan family sought approval to demolish their dilapidated beach-front home in order to construct a new home.³² As part of the approval process, the Nollans had to apply for a permit from the California Coastal Commission.³³ The Commission granted the permit, conditioned on a deed restriction granting a public easement for beach access.³⁴ The Nollans challenged the deed restriction as an impermissible exaction.³⁵ The Court held for the Nollan family because the easement did not bear an essential nexus to the building permit, explaining that “unless the permit condition serves the same governmental purpose as [a] development ban [protecting the public’s ability to see the beach], the building restriction is not a valid regulation of land use but ‘an out-and-out plan of extortion.’”³⁶

Here, the Initiative likely bears a sufficient nexus to increased sustainability in order to be considered a legitimate governmental purpose. Consequently, any challenge to the sufficiency of the nexus would likely fail. The stated purpose behind the Initiative is to address a multitude of environmental concerns as addressed in Denver’s 2020 Sustainability

24. Craig James Doran, *First English Evangelical of Glendale v. Los Angeles County and Nolan v. California Coastal Commission: The Big Chill*, 52 ALB. L. REV. 325, 346 (1987).

25. *Lingle v. Chevron*, 544 U.S. 528, 537–38, 541 (2005) (quoting *Pennsylvania Coal Co. v. Mahon*, 260 U.S. 393, 415 (1922)).

26. Richard D. Rattner & Patrick M. Ellis, *After Koontz: Practical Considerations, Real Implications*, 40 MICH. REAL PROP. REV. 105, 105 (2014).

27. *Id.* (quoting *Lingle*, 544 U.S. at 537).

28. See W. Andrew Gowder, Jr. & Bryan D. Wenter, *Recent Developments in Exactions and Impact Fees*, 41 URB. LAW. 513, 514 (2009).

29. See Rattner & Ellie, *supra* note 26.

30. *Id.*

31. *Nollan v. California Coastal Comm’n*, 483 U.S. 825, 837 (1987).

32. *Id.* at 827.

33. *Id.* at 828.

34. *Id.*

35. *Id.*

36. *Id.* at 837 (quoting *J.E.D. Associates, Inc. v. Atkinson*, 432 A.2d 12, 14–15 (1981)).

Goals.³⁷ Denver's Sustainability Goals are undoubtedly a proper use of the police power because increased sustainability may benefit citizens' health, safety, and welfare. The citizens who proposed the Initiative explain that mandated green roofs will reduce Denver's urban heat island effect by absorbing solar energy through evapotranspiration, thus reducing heat-flow throughout Denver between 70% and 90% in the summer and 10% and 30% in the winter.³⁸ They also believe that green roofs will alleviate Denver's "storm-water drainage issues" by trapping storm water in the foliage and allowing its release into the Denver storm-water-drainage system at a more measured pace.³⁹ They also cite Denver's goal of growing 20% of food in the city, promoting green roofs as a viable solution to achieve the agricultural goal.⁴⁰ Finally, they believe that green roofs will help benefit Denver's air quality by cooling the ambient air and trapping particulates.⁴¹

Scientific studies suggest green roofs do perform in many of the ways that the citizens who proposed the Initiative suggest.⁴² Following increased interest in and installation of green roofs in Hong Kong, the Architectural Services Department completed an extensive study examining green roofs' costs and benefits in cities throughout the world.⁴³ The study concluded that green roofs do offer tangible benefits.⁴⁴ These results suggest that the Initiative does have a direct relationship to the sustainability goals unlike the "out-and-out" plan of extortion" in *Nollan*.⁴⁵ Consequently, any challenge brought solely under the *Nollan* "essential nexus" test is likely to fail. Courts, however, apply *Nollan* in conjunction with "rough proportionality" as part of a two-pronged test to determine if an exaction occurred.⁴⁶

The exaction must be roughly proportional to the use or public burdens the development may create.⁴⁷ In other words, there must be a sufficient degree of connection between the regulation and the projected im-

37. DENV. OFFICE OF SUSTAINABILITY, 2020 SUSTAINABILITY GOALS 1–2, https://www.denvergov.org/content/dam/denvergov/Portals/779/documents/2020%20Sustainability%20Goals_Handout_02_2017_Final.pdf (last visited Apr. 6, 2018).

38. *Our Mission: Why is this Important?*, DENV. GREEN ROOF INITIATIVE, <http://www.denvergreenroof.org/our-mission> (last visited Apr. 22, 2018).

39. Litichevskaya, *supra* note 2, at 67.

40. *Our Mission: Why is this Important?*, *supra* note 38.

41. Litichevskaya, *supra* note 2, at 65.

42. See e.g., *Shining the Light on Green Roofs: Analyzing Data from the Region 8 EPA Green Roof Study (Part 1)*, ENERGY DESIGN UPDATE, Apr. 2013, at 1–9; Alexandra Dapolito Dunn, *Sitting Green Infrastructure: Legal and Policy Solutions to Alleviate Urban Poverty and Promote Healthy Communities*, 37 B.C. ENVTL. AFF. L. REV. 41, 51–52, 54 (2010).

43. ARCHITECTURAL SERVS. DEP'T, STUDY ON GREEN ROOF APPLICATION IN HONG KONG 6 (2006), https://www.archsd.gov.hk/media/11630/green_roof_study_final_report.pdf.

44. *Id.* at 67–68.

45. *Nollan v. California Coastal Comm'n*, 483 U.S. 825, 837 (1987) (quoting *J.E.D. Assoc. v. Atkinson*, 432 A.2d 12, 14–15 (1981)).

46. *Dolan v. City of Tigard*, 512 U.S. 374 (1994).

47. *Id.*

pact of the development.⁴⁸ As part of a statewide land-use management program, the city of Tigard, Oregon created a comprehensive land-use plan—in part targeting the link between increased impervious surfaces and area flooding—recommending channel excavations and a ban on structures within the 100-year Fanno Creek floodplain.⁴⁹ When the petitioner applied for a redevelopment permit to expand her store and install increased parking capacity, the city conditioned its approval on her dedicating all property within the 100-year floodplain for an improved storm-water-drainage system and an additional fifteen-foot swath adjacent to the floodplain for a pedestrian and bicycle trail.⁵⁰ The Court found that neither the 100-foot floodplain easement nor the pedestrian and bicycle easement was roughly proportional to the development's impact and constituted an impermissible taking.⁵¹ To be roughly proportional, the Court explained, a municipality must make an “individualized determination that the required dedication is related both in nature and extent to the impact of the proposed development.”⁵²

Here, the Initiative likely fails to be roughly proportionate to the nature and extent of the developments' impact. A developer may successfully bring suit against Denver for an exaction because the potentially oppressive cost of installing a green roof on a new building, remodel, or addition likely fails to be roughly proportional to the development's impact on Denver's environment. The proper inquiry for the development's impact is the *single parcel* in question, not the aggregate impact of all developments on Denver's environment.⁵³ For example, the Initiative mandates that a 42,800 square-foot grocery store have 20% green roof coverage.⁵⁴ To install the green roof, the grocery store faces an added cost of roughly \$300,000.⁵⁵ The additional \$300,000 likely is excessive when considering the effect that such a building would have on Denver's urban heat index and storm-water-drainage system. Furthermore, the available exemption does not save the Initiative from being declared an unconstitutional exaction. The cash-in-lieu of a total or partial green roof exemption remains susceptible to challenge because it is still an exaction, albeit in a different form than a physical dedication.⁵⁶ Consequently,

48. *Id.* at 377.

49. *Id.* at 377–78.

50. *Id.* at 379–80.

51. Lauren Reznick, *The Death of Nollan and Dolan? Challenging the Constitutionality of Monetary Exactions in Wake of Lingle v. Chevron*, 87 B.U. L. REV. 725, 736 (2007).

52. Madelyn Morris & Mary Griffith, *Regulatory Taking Claims in Massachusetts*, 82 MASS. L. REV. 237, 242 (1997) (quoting *Dolan*, 512 U.S. at 391).

53. *See Dolan*, 512 U.S. at 400–01.

54. Carolynne White & Caitlin Quander, *Denver Green Roof Initiative Passed by Denver Voters*, BROWNSTEIN HYATT FARBER SCHRECK (Nov. 9, 2017), https://www.bhfs.com/Templates/media/files/2017_11_09%20Denver%20Green%20Roof%20Initiative%20Passed%20by%20Denver%20Voters.pdf.

55. *Id.*

56. Malcolm M. Murray, *Life After Dolan: Will It Ever Be the Same?*, 24 COLO. LAW. 59, 61 (1995).

courts would apply the same analysis for the cash-in-lieu of compliance exception and the green roof dedication.⁵⁷

In short, the Initiative is tackling a noble goal, but the current mandate is not the proper method for implementation because it leaves Denver vulnerable to constitutional challenges by irate developers. Instead, Denver should explore amending the Initiative to rely on incentive-based regulations. Such a change is harmonious with the Initiative because the Initiative contains a provision allowing the Green Roof Technical Advisory Group to review and amend the Denver Green Roof Construction Standard.⁵⁸ As evidenced in the Hong Kong study on green roofs, an incentive-based regulatory scheme will not detract from the Initiative's goals.⁵⁹ Green roofs inspired by incentives still achieve the Initiative's stated goals and have the added benefit of insulating Denver from takings suits.

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57. *Id.*

58. DENVER, COLO. REV. MUNICIPAL CODE, ch. 10, art. XIII, § 10-305(c)(1)(b)-(c) (2018).

59. See ARCHITECTURAL SERVS. DEP'T, *supra* note 43.

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