

110TH CONGRESS
1ST SESSION

H. R. 4917

To formulate situation and decision analyses, and to select procedures and systems, for deflecting and mitigating potentially hazardous near-Earth objects.

IN THE HOUSE OF REPRESENTATIVES

DECEMBER 19, 2007

Mr. ROHRABACHER introduced the following bill; which was referred to the Committee on Science and Technology

A BILL

To formulate situation and decision analyses, and to select procedures and systems, for deflecting and mitigating potentially hazardous near-Earth objects.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. SHORT TITLE.**

4 This Act may be cited as the “NEO Preparedness
5 Act”.

6 **SEC. 2. FINDINGS.**

7 The Congress finds the following:

8 (1) Asteroid and comet collisions rank as one of
9 the most costly natural disasters that can occur.

1 (2) According to the October 2007 report to
2 Congress by the National Aeronautics and Space
3 Administration (in this Act referred to as “NASA”),
4 140-meter-in-diameter asteroid collision will generate
5 the equivalent power of a 100 megaton TNT explo-
6 sion.

7 (3) There are approximately 100,000 near-
8 Earth objects 140 meters wide or larger.

9 (4) The time needed to eliminate or mitigate
10 the threat of a collision of a potentially hazardous
11 near-Earth object with Earth is measured in dec-
12 ades.

13 (5) Unlike earthquakes and hurricanes, aster-
14 oids and comets can provide adequate collision infor-
15 mation, enabling the United States to include both
16 asteroid- and comet-collision disaster recovery and
17 disaster avoidance in its public-safety structure.

18 (6) Basic information is needed for technical
19 and policy decisionmaking for the United States to
20 create a comprehensive program in order to be ready
21 to eliminate and mitigate the serious and credible
22 threats to humankind posed by potentially hazardous
23 near-Earth asteroids and comets.

24 (7) As a first step to eliminate and to mitigate
25 the risk of such collisions, situation and decision-

1 analysis processes, as well as procedures and system
2 resources, must be in place well before a collision
3 threat becomes known.

4 (8) Without establishing such processes, proce-
5 dures, and resources, the full range of options to
6 eliminate and to mitigate the risk of such collisions
7 is restricted or even lost.

8 (9) The public safety of the United States and
9 the planet requires the competence and expertise
10 found in NASA to prepare and to validate the poten-
11 tially hazardous near-Earth object deflection situa-
12 tion and decisionmaking analysis, as well as to select
13 systems and procedures, to prepare the United
14 States for readiness to avoid or to mitigate collisions
15 with potentially hazardous near-Earth objects.

16 **SEC. 3. DEFINITIONS.**

17 As used in this Act—

18 (1) “potentially hazardous near-Earth object”
19 means an asteroid or comet with a trajectory that
20 passes less than 0.05 Astronomical Units from
21 Earth’s orbit;

22 (2) “Administrator” means the Administrator
23 of NASA;

24 (3) “adequate-warning” refers to a time period
25 starting from the time that the near-Earth object is

1 considered potentially hazardous to the predicted time
2 of possible collision, which allows the full range of
3 readiness options to be implemented;

4 (4) “short-warning” refers to a time period that
5 allows only limited options to be implemented; and

6 (5) “comet” means near-Earth or short-warn-
7 ing comets.

8 **SEC. 4. ESTABLISHMENT OF THE OFFICE OF POTENTIALLY**
9 **HARADOUS NEAR-EARTH OBJECTS, IDENTI-**
10 **FICATION OF SITUATION- AND DECISION-**
11 **ANALYSIS FACTORS, AND SELECTION OF**
12 **PROCEDURES AND SYSTEMS.**

13 (a) **ESTABLISHMENT.**—The Administrator shall es-
14 tablish the Office of Potentially Hazardous Near-Earth
15 Object Preparedness (in this Act referred to as “Office”).
16 The purpose of the Office shall be to prepare the United
17 States for readiness to avoid and to mitigate collisions
18 with potentially hazardous near-Earth objects in collabo-
19 ration with other Agencies through the identification of
20 situation- and decision-analysis factors and selection of
21 procedures and systems.

22 (b) **IDENTIFICATION OF SITUATION- AND DECISION-**
23 **ANALYSIS FACTORS.**—The Office shall identify situation-
24 and decision-analysis factors, in collaboration with other
25 Agencies, by determining—

- 1 (1) the needed objective technical and nontech-
2 nical criteria upon which to analyze potentially haz-
3 ardous near-Earth object collision information and
4 to base key threat elimination-decisions and options;
- 5 (2) the implications of such decisions and op-
6 tions;
- 7 (3) the human skills needed to make key threat
8 elimination-decisions and the preparation required
9 for individuals making such decisions;
- 10 (4) the factors needed to formulate key technical
11 and policy questions involving such decisions;
- 12 (5) methods for determining and sequencing the
13 minimum possible time periods needed to make such
14 decisions;
- 15 (6) a model deflection and mitigation decision
16 logic flow, including provisions for minimizing—
 - 17 (A) human exposure,
 - 18 (B) energy, cost, and time, and
 - 19 (C) the risk of return of potentially haz-
20 ardous near-Earth objects; and
- 21 (7) additional critical information needs, tech-
22 nological developments, public confidence building
23 initiatives, and any other needs involving the threat
24 of collisions of potentially hazardous near-Earth ob-
25 jects with Earth.

1 (c) SELECTION OF PROCEDURES AND SYSTEMS.—

2 The Office shall select procedures and systems by—

3 (1) surveying the existing deflection proposals
4 and examining each proposal for critical elements in-
5 cluding capability, suitability, feasibility, cost, cost
6 effectiveness, required human and capital resources,
7 and maturity of needed key technologies;

8 (2) with the results from subsection (a) and
9 input from other appropriate sources, performing an
10 architectural tradeoff assessment and selecting a set
11 of deflection proposals as primary procedures and
12 systems that will provide the best opportunities for
13 deflection-preparation, taking into account adequate-
14 and short-warning collision timelines, as well as rel-
15 evant asteroid and comet characteristics;

16 (3) for each selected primary procedure and
17 system—

18 (A) identifying the best backup;

19 (B) defining the steps needed to realize im-
20 mature key technologies;

21 (C) developing preliminary models;

22 (D) performing a predicted results error-
23 analysis in order to confirm the characteristics
24 described in subsection (a);

25 (E) projecting time to readiness;

1 (F) formulating an implementation phase
2 to achieve full deflection readiness;

3 (G) establishing implementation timelines
4 with measurable interim goals, and steps to
5 transfer the procedure and system resources to
6 the implementation phase; and

7 (H) identifying the crucial policy decisions
8 needed for implementation; and

9 (4) indicating possible coordination with other
10 Agencies to facilitate such activities.

11 **SEC. 5. REPORTS.**

12 The Administrator shall submit to the Congress the
13 following reports:

14 (1) Not later than 1 year after the date of en-
15 actment of this Act, an interim report that summa-
16 rizes a preliminary result of the activities of the Of-
17 fice carried out under sections 4(b) and 4(c)(1)–(2).

18 (2) Not later than 2 years after the date of en-
19 actment of this Act, a concluding report that sum-
20 marizes all activities of the Office carried out under
21 section 4.

22 **SEC. 6. NASA ADVISORY COUNSEL.**

23 The Administrator shall convene the NASA Advisory
24 Council—

1 (1) not later than 90 days after submitting the
2 interim report required by section 5(1), to provide
3 the Administrator with advice for the concluding re-
4 port; and

5 (2) not later than 90 days after submitting con-
6 cluding report required by section 5(2), to provide
7 the Administrator with advice for subsequent activi-
8 ties under section 4.

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